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ORIGINAL ARTICLES.

RECENT METHODS IN CARDIAC THERAPEUTICS BY BATHS AND EXERCISES.¹

BY THOMAS E. SATTERTHWAITE, M.D.,

OF NEW YORK;

CONSULTING PHYSICIAN TO THE POST-GRADUATE, ORTHOPEDIC
AND BABIES' HOSPITALS.

THIS paper will be devoted to the methods employed for the past two years in this country. So far as I know there has been no material change in the methods used at Nauheim.

I will first speak of exercises and their adjuvants because I usually begin my treatment with them, and because they have a somewhat wider application in cardiac therapeutics than the carbonated baths. Sometimes, in fact, I have given no baths at all, yet have had good results; for it may be remembered that exercises alone will generally accomplish the same results although more slowly and less agreeably than when the two are used in conjunction.

I do not propose to give a recital of well-known details. On two occasions in this hall I have demonstrated my particular methods of giving resistant exercises; while the plan of the baths has been presented to the profession so many times that practitioners have been well-informed as to the way they are administered. However, it will serve the purpose of this paper at this point to make a brief statement about the exercises. They are chiefly voluntary, and consist in flexion, extension, adduction, abduction and rotation of the limbs, neck and trunk by the patient while the operator opposes graduated resistance. Between each single movement, more rarely between groups of movements, there is an intermission. This method, thus described, is known as the Schott System. It consists, therefore, of intermittent, voluntary movements on the part of the patient, resisted by the operator. The ordinary Swedish movements, as they are commonly understood here, are voluntary and unresisted and more or less continuous. They need no operator. But I use also a number of passive movements which I have found of such great value that I never omit them from any course. I have called them respiratory and have described them at length in a paper read before the County Medical Society, February 28, 1891². The two most important are described as follows, the first one being adapted for bed-patients, the second for ambulants. In the first one the patient lies on the back on a couch, with the head and shoulders elevated slightly; the operator standing at the

side or back passes his arms under the armpits, raising the trunk slowly as far as possible without actually lifting the patient from the couch. Then the trunk is allowed to return to its former position. It will be noted that this exercise is not to be resisted by the patient. I therefore call it a *passive* movement. It is specially adapted for obese patients, or cases of cardiac dropsy. Each respiratory movement is in the direction of artificial respiration, and should be repeated from one to five times a minute on an average. The other respiratory movement, which I have also described, is designed for patients with a fair degree of strength. The patient sits on a stool while the operator, standing on another stool behind him, passes his hands over the patient's shoulders, grasping him by the axilla; the patient's body is then lifted upward as far as possible without the patient absolutely leaving the stool. The potency of this operation is now increased by the operator drawing the patient's shoulder over backward as he does it by pressing his knee slightly against the middle of the patient's back, while he draws him over backward. After an intermission the trunk is permitted to settle slowly down into the original sitting position. Of course, the operator needs physical strength for this movement; sometimes in heavy people two operators are required. There are several other respiratory exercises that I have elsewhere described.

Resistant exercises, and in fact all exercises, are less effective if used consecutively. They are best interspersed in a way to give some variety between passive movements, massage, percussion or perhaps vibration. A good scheme of a course is as follows: (1) A respiratory movement, such as has been described (Nos. 33 or 34 of my published series³). (2) Elbow flexion and extension (Nos. 3 and 4 of my series). (3) Foot flexion and extension (Nos. 21 and 22 of my series). (4) Abdominal massage. (5) Flexion of leg on thigh (Nos. 35 and 36). (6) Massage of arm and forearm. (7) Arm circumduction (Nos. 7 and 8 of my series). (8) Flexion of knee (Nos. 37 and 38 of my series). (9) Leg massage. (10) Percussion of back, manually or by vibrator (Nissen), with massage.

The séance should at first be short, not over fifteen minutes, especially with delicate people; and in any case it should not last more than an hour. As the course progresses, the number of exercises should gradually increase, more resistance be employed, but intermissions are always to be maintained. Sometimes, however, the patient can not bear any increase in the number of movements,

¹Read before the New York Academy of Medicine, February 1, 1900.
Prepared by request of the President.
²Post-Graduate, June, 1898.

³See Post-Graduate, June, 1898.

and little force can be used. In cardiac cases of a neurotic type, brilliant results are often obtained by pushing the force of the movements to the limit of the patient's tolerance; but each case, of course, requires a somewhat different series of exercises, and herein lies an opportunity for skill and experience.

In addition to the active and passive movements I always insist that the patient walk more or less daily in the open air when it is practicable, or, if he cannot leave the house, in his apartments, which should be well ventilated while he takes his walk. Distances in any case should be gradually increased. Hurried movements, however, must never be permitted. Stairs should be ascended slowly; heavy weights should not be lifted and the patient must be warned that any physical strain may be followed by most dangerous results. But mental strain should also be avoided as far as possible. These two forms of strain, together with overeating, form the most frequent causes of death in chronic heart-disease. Let the patient avoid them, pursue the modern method of treating failing compensation, when it occurs, and he may live to a good old age.

It is a mistaken idea that a patient should always be kept in the dark about his heart trouble. In the vast majority of cases he should be told plainly what his condition is, particularly if the disease is organic, in order that he may take pains to guard against heart failure. I feel convinced that by pursuing this plan, many valuable lives may be indefinitely prolonged.

At this point I wish to say that a patient should be prepared for a course of treatment much as he would be prepared for a major physical operation. During the preliminary treatment many important data will be obtained and it may be possible to remove suspicious quantities of albumin, sugar or even granular casts, so that the baths can be undertaken in safety, which otherwise would be a source of constant danger. Slight albuminuria, a small amount of glycosuria, and moderate cardiac dropsy, do not absolutely contraindicate a course of baths.

If the patient can take a regular six weeks' course, which is advisable in all cases, I do not at first carbonate the bath, but during the second week I employ a quarter of one per cent. of the gas. From the beginning of the third week to the end of the sixth week, the strength of the baths in salines, carbonic acid, and finally chloride of calcium should be gradually increased. The immersion should not last less than four minutes, nor more than fifteen. In a delicate persons the duration should be short. As a rule, all patients are to begin with a bath at 98° F. But some effort should be made to reduce the temperature gradually, although never more than a degree a day. I am unable to use a bath at as low a temperature as 85° F., which is the point to which in Germany they attempt to reduce the temperature. Such a low degree of temperature would not be well borne in this country. If the patient can endure a bath at 89° F., it must be

regarded as something unusual. Usually it does not fall below 92° F. Sometimes the temperature cannot be reduced at all, and a bath should never be given in which the patient on immersion has a sensation of chilliness.

Baths and exercises are omitted in cardiac cases at intervals of three, four and five days. So that in a course of forty-two days there should be nine intermissions. These intervals have various uses; they give a physician an opportunity to make a special examination of the patient and his environment; but more than this they seem to have a salutary effect for reasons that are not clear. Certainly these intermittent baths are more effective than consecutive baths. While a course ordinarily lasts six weeks, I sometimes give a modified course, lasting several months; in fact, more or less throughout the entire year. (By this method we have an advantage over the Nauheim system. We give ours continuously throughout the year; in Nauheim the baths can only be given in summer-time.) Modified courses are suited for locomotor ataxia, probably for various forms of myelitis, for neurotic forms of heart diseases, neurasthenia, melancholia, insomnia, the drug habits and chronic rheumatism.

I do not propose to discuss here the older methods of carbonated baths by the use of crude muriatic acid or liquid carbonic acid gas. I have used both, the latter extensively. The one is too dangerous, the other is unsatisfactory for reasons known to chemists or pharmacists. There is always a danger from the bursting of the drum or cylinder. There have been a number of accidents from this cause. More than this, it is practically impossible to accurately charge the bath with the desired amount of carbonic acid, for carbonic acid gas is absorbed by water in proportions varying with the temperature of the air and the water. Even if every precaution is used, a great deal of gas is lost. In fact, I do not believe that liquid carbonic acid in any form will ever be employed to any extent in making carbonated baths. Fortunately, we have no use for either of these methods. Mr. H. A. Cassebeer of this city adopted some time ago the plan of Sandow of Germany, and made solid discs of the bisulphate of soda as a substitute for the crude muriatic acid, so that now with the aid of the commercial bicarbonate of soda any one can carbonate a bath safely, quickly and inexpensively, obtaining the amount of carbonic acid gas that may be desirable, with a reasonable degree of accuracy. The Triton Company of this city, following Mr. Cassebeer, supplies similar discs and soda all put up in neat boxes. So that now all the materials for carbonating a bath can be obtained from any druggist in the country. In some respects this artificial bath is superior to the original. It is entirely free from iron, earthy and other extraneous matters found in the Nauheim waters, which have no curative value, but the amount of carbonic acid as artificially prepared in the bath, and the amount of salt and chloride of calcium

can be made to correspond practically with the same ingredients as found in the natural Nauheim waters. As the course nears the end I use the imported Hauheim salts, known here as the concentrated Nauheim Brine Salts. They are a convenient vehicle for the chloride of calcium, of which they contain about 75 per cent. I feel confident that they add to the efficacy of the bath.

These salts are the uncrystallized residue of the salt works at Nauheim, and are produced by boiling down and evaporating the mother liquor after the commercial salts have been extracted. For the brine I use an American bathing salt as a rule, although in delicate cases I sometimes prefer sea salt in order to secure the bromine and iodine that they contain. For the past year I have been using the purified Genesee bathing salt obtained from the mines in this State. This bathing salt is of very superior quality. I doubt if it has any superior.

The method of preparing a bath is as follows: Fill the bath-tub, whether porcelain, enameled iron, wooden or painted, or merely metal lined, with fifty gallons of water, at 110° F.; then add the desired amount of ingredients as shown by the special directions which follow. First, place the tablets or discs of the acid sulphate, more or less broken or pulverized, at various points on the bottom of the tub. If the tub is of porcelain, enameled iron or wood, they may be placed immediately on the bottom. If the tub is of unpainted metal or painted, wrap each of the pulverized discs in a little bit of tin foil or rubber sheeting; then add the bicarbonate of soda. Evolution of gas takes place in three to ten minutes. The patient should enter the bath at 98° F. and remain in it during the prescribed period of time. The salt should be introduced either before or after the acid sulphate. When the gas is evolved it will be seen to attach itself to the trunk and limbs under the form of minute bubbles. My scheme for an ordinary six weeks' course is at the present time, as follows:

First week: Half a per cent. warm sea-bath (2 pounds bathing salt to 50 gallons of water), temperature 98° F., duration four minutes. Intermission on third day. Second week: Three-fourths per cent. warm bath (3 pounds salt to 50 gallons). Temperature 97° F., six minutes. Intermission on fourth day. One-fourth per cent. carbonic acid gas (2 discs to a package). Third week: One per cent. warm salt bath (4 pounds to 50 gallons). Temperature 96° F. Carbonic acid gas $\frac{1}{2}$ per cent. (4 discs to two packages), four minutes. Intermission on fourth day. Fourth week: One one-fourth per cent. bath (5 pounds salt to 50 gallons). Temperature 95° F. Nauheim concentrated brine salts,¹ 8 ounces, ten minutes, carbonic acid gas three-fourths per cent. (3 packages to 6 discs). Intermission on fourth day. Fifth week: One-half per cent. bath salt (7

pounds to 50 gallons). Temperature 94° F. Concentrated brine salts, 10 ounces. Twelve minutes. Carbonic acid salts three-fourths per cent. Intermission on fifth day. Sixth week: Two per cent. salt bath (10 pounds to 50 gallons), temperature 93° F. Concentrated brine salts, 12 ounces. Carbonic acid gas one per cent. (4 packages in 8 discs). Fourteen minutes. Intermission every fifth day.

In sthenic cases I begin at once with the carbonated bath; with feeble persons I am apt to omit the last two baths of the series. (Nos. 5 and 6.) In neurotic cases it is not advisable to use the concentrated salts, and the patient may oscillate between the two weaker carbonated baths. By this method the baths can be kept up more or less continuously for several months. Baths given with too much carbonic acid gas, too often, or of too long duration, excite the nerves, diminish the appetite and reduce the strength. Accidents seldom happen when the patient adheres to the rules above laid down, but, I am sorry to say, these baths are now given by persons with limited experience, without the supervision of a physician. This matter cannot be too strongly disengaged, and, yet, I will go further and say that patients are sent from abroad to be treated by these unqualified persons without the direction of a physician on this side of the water. Of course it cannot be wondered at if failure results in such cases; but more than this, serious accidents are likely to happen. Cases of chronic heart-disease are always in a more or less precarious condition, and the management of them should be exclusively in the hands of licensed practitioners. Resistant exercises and massage act much as do the baths, as I have already said, but are not so prompt or certain in their action. Both of them improve the superficial and deep circulation, the former by mechanical means, the blood being invited to the limbs and extremities thus obviating congestion of internal organs. In so doing a dilated heart is relieved of its internal pressure and given an opportunity to contract. It must be remembered that the muscles constitute from one-third to one-twelfth the weight of the body, and during contraction their veins and lymphatics are emptied, thus diminishing peripheral resistance, so that the arteries, which are not contracted by the exercises, are free to carry the blood to the extremities. That the heart actually contracts in many cases seems now to have been abundantly shown by numerous experimenters. Indeed, it seems to have been proved with considerable accuracy by the skiagraphs of Schott.¹ As to a comparison between manual and mechanical methods, I desire to speak with caution. It is true that the mechanical method (the Zander, for example) assures precision in its adaptation to a locality and in the regulation method of force; but I doubt if any mechanical method is as well adapted to varying individual needs

¹Concentrated lime salts are furnished by H. A. Cassebeer, the druggist of this city, at 50 cents per pound; he also furnishes the other ingredients for the bath.

¹Deutsche med. Woch., April 1, 1897.

as the hands of an operator backed by skill and intelligence. People sometimes say they do not understand how these grand results are obtained, but the explanation is not difficult to make. While the initial exercises are mild and do not tire the patient they can be made very forcible, and, indeed, produce great weariness; in fact, they are more effective than any form of deep massage, on the other hand, the effect of the baths is due to the warm brine, the gas and the chloride of calcium; each has its special value. The warm bath alone, when it reddens the skin and causes congestion of the capillaries, gives some relief to dilated heart. Carbonic acid gas is a combined stimulant and anesthetic; while it numbs the skin it also stimulates it. By acting as a local agent this latter effect is intensified by the chloride of calcium. The bath improves the pulse by making it stronger and less frequent. In tachycardia it will reduce the pulse, and in bradycardia will increase it. In one of my cases of tachycardia an average pulse of 125 before the bath fell to an average of 111 after nine successive baths; an average fall of 14 points. In the same patient, with an average of 123 before the exercises, there was an average fall to 110 afterwards, showing, if anything, that the effect of the bath was a little more marked than the exercises. Ordinarily there was a fall of from 3 to 5 points after the bath, but not quite so many after exercising. These statements go to show, as stated, that the baths are more effective than the exercises. On the other hand in a case of bradycardia, I have known an average pulse of 60 to rise to a point between 70 and 74 after a bath. Among other effects of the bath there is increased renal secretion, with some disappearance of exudations in internal parts.

While, however, baths and exercises have gained their principal reputation by employment in the treatment of chronic valvular disease, where compensation has been broken and so-called heart tonics have failed to make the heart respond, carbonated brine baths have also been used in rheumatism and gout, chlorosis, typhoid fever, and in some functional and organic nervous diseases, such as locomotor ataxia, matters to which I have already alluded. I should fail, however, to describe this method accurately if I omitted stating that there should be a definite system of diet, and that the gastro-intestinal tract should be carefully attended to.

But contraindications are important. Baths should not be used in Bright's disease, where the parenchyma of the kidney is seriously involved. In Graves' disease, with cardiac dilatation, baths are of doubtful value. Many cases of arteriosclerosis are not benefited. On the other hand, baths and exercises may be used with advantage in arteriosclerosis sometimes, as, for example, when a well-marked syphilitic history is recognized and treated. In general cardiac dropsy, if extensive, and advanced stages of phthisis there is not much hope for improvement by either baths or exercises. The baths are applicable in

my experience to about 80 per cent. of cases of chronic heart-disease with broken compensation. In the remaining 20 per cent. exercises combined with massage may be of considerable help. Although in the majority of cases I use no so-called heart tonics during treatment, one must at all times be prepared to treat the heart in this way and if our treatment by baths and exercises has for any reason to be suspended, we may be compelled to use them. Digitalis still stands at the head as a direct heart stimulant, nitroglycerin is a good second, and strychnine often a good third. In cardiac dropsy digitalis is easily at the head for its diuretic effect; I use it in the form of digitaline (Merck) in a hundredth of a grain doses given every three to eight hours. Nitroglycerin in doses of $\frac{1}{120}$ to $\frac{1}{50}$ of a grain I have given as often as every hour. Strychnine in doses of $\frac{1}{60}$ to $\frac{1}{50}$ of a grain I give every four hours. Calomel in small doses I usually give two or three times a week; in bad cases I give it daily. As a rule I use Carlsbad salts as a purgative. The bowels must always be kept in a relaxed condition. For sudden attacks of dyspnea I give capsules containing each $\frac{1}{100}$ of a grain of nitroglycerin, $\frac{1}{4}$ of a grain of amyl nitrite and menthol $\frac{1}{50}$ of a grain, with the oleoresin of capsicum $\frac{1}{100}$ of a grain. These ingredients are suspended in ten minims of castor oil. This combination is very effective in attacks of angina pectoris, whether true or false. Relief is usually given in less than a minute, often in a few seconds. As a diuretic and heart stimulant I have also had good results, though often temporary, from the sulphate of sparteine in doses of $\frac{1}{20}$ to $\frac{1}{10}$ of a grain. The monobromate of camphor is used constantly in some neurotic cases. In cardiac dropsy, however, we should always aim first to secure free diaphoresis and for this purpose I use the muriate of pilocarpine (Merck), giving sometimes as much as one grain a day in conjunction with digitalis, nitroglycerin and stimulants. In fact, I have given 13 $\frac{1}{2}$ grains of this drug in a day, because it required this amount to secure diaphoresis. I have never had any ill effects from it, but always have had an experienced nurse to watch its effects. The comparatively small number of cases seen that are beyond the treatment by baths and exercises, and where it is only a question of prolonging life a few months at best.

I do not wish to be understood, therefore, as urging the use of the so-called heart tonics or stimulants; they are the last remedies to be used. I want it fully understood that in broken compensation the effort should be rather to remove obstacles to the circulation than to compel a weak heart to forceful action by the remedies just mentioned, and it is very remarkable how by giving close attention to these simple methods a weak heart will gradually become stronger.

A good deal of interest has lately centered about the comparative methods of angiography, fluoroscopy and percussion, in outlining the heart. It may be remembered that on March 6, 1897, in

this Academy, I demonstrated a new way to indicate the location, size and movements of the heart, by means of X-ray shadows. At that meeting I was able to mark out the limits of the heart on the fluorescent screen. I called this method *fluorography*, and my confrères, Drs. Porter, Burt and Wilcox, who had examined the patient whom I presented and marked out the heart, were unanimous in stating that by my method there was wonderful correspondence between the two methods. In a recent article by Dr. Williams¹ of Boston I find that his investigations have in a measure confirmed those that I made; if I understand his figures, in 65 out of 71 men he found that the difference between the results of percussion and fluoroscopy was less than three-twentieths of an inch. In 33 out of 38 women, the difference was also less than three-twentieths of an inch. Now this lack of correspondence may appear large, but in reality it does not prove much. For leaving out of question the inevitable inaccuracy of fluoroscopy, we have to deal in these cases often with a wide movement of the heart, as shown by its apex, for example. To be precise in the four cases of dislocated heart from spinal curvature, published by me (*N. Y. Med. Jour.*, Sept. 30, 1899), there was a recession toward the normal of from $\frac{3}{8}$ to $2\frac{1}{2}$ inches, or an average of $1\frac{1}{2}$ in round numbers. Evidently then an error, if there should be one, of $\frac{1}{20}$ of an inch in the percussion outline would be of comparatively little importance in these particular cases. It seems to me, therefore, that fluorography, or fluoroscopy, is gradually coming to the front and this view is sustained by the opinion of Stubbart, Abrams, Tracy and Roberts.² Skiagraphs are, as Tracy³ has pointed out, notoriously fallacious, as he shows in a quotation from Dr. Keen of Philadelphia, who, judging from a skiograph that a bullet lay outside the head of the tibia, cut down upon it, only to find the entire ball within the bone. Of course, skiagraphs have their merits and in this connection it may be well to note the investigations of Schott. Desirous of showing by the X-ray that the heart if dilated will contract under his treatment, he placed a patient with artificially dilated heart⁴ on a table, resting on a large piece of paper, the outline of the body indicated by a line carried around the body just as a shoemaker outlines the foot in preparing to make a pair of shoes. Then with the focus tube firmly fixed in a given position beneath the table, and a sensitive plate above the patient and in a fixed position, a skiograph was taken of the heart. After an interval of rest the patient was skiographed on the same table in exactly the same position, with the apparatus also unchanged in position, and the skiograph showed a positive diminution in the size of the heart. Of course in this case there was the usual distortion, the heart being magnified by the divergent rays from the

focus tube; but inasmuch as the patient, the tube, and the plate occupied precisely the same positions in each case a good idea of the contraction of the heart was obtained by comparison of the two pictures. Of course neither fluoroscopy nor skiography give as yet accurate pictures of internal organs, but the errors may not be, in my opinion, insuperable. In a paper read in this building March 16, 1897, I said, speaking of fluorography, that I was not prepared to state that it would supersede percussion for mapping out the heart, but that I could conceive that the size, position and measurements of the heart might be determined by fluorography without either percussion or auscultation. This position I maintain at present, but I see no need of abandoning percussion in favor of these two other methods; and yet I believe that the time is not far off when some simpler plan will be devised for throwing a correct silhouette of the heart on the fluorescent screen. But for the present I find that auscultation in combination with percussion is the best all-round method of mapping out the heart for clinical work.

, East 80th street.

MILK INSPECTION BY THE NEW YORK BOARD OF HEALTH.

BY HERMAN BETZ, M.D., Ph.G.,
OF NEW YORK.

THE object of the present communication is to present a brief statement of the routine of milk inspection as carried on by the Department of Health in New York City.

The milk-inspector is appointed from the head of the list after passing a successful Civil Service examination, from which, until recently, all except physicians, pharmacists and chemists were barred. At an appointment of five some time ago four had above 90 points each to their credit after a most severe examination. The knowledge that such men bring to bear upon their work cannot fail to give satisfactory results. The use and handling of apparatus and scientific instruments is no secret to them, and they are, from the start, able to do satisfactory work. Their greatest strength is shown, however, in trials of milk cases, where shrewd lawyers are frequently employed on the other side, and where any one but a man with a scientific training would fail.

The milk-inspector is on duty, technically, all the time; he may be called upon at any hour, day or night, Sundays as well as on week-days, for it is obvious that a dishonestly inclined milk-dealer, who behaves himself during the week, should not be left under the impression that he can do as he pleases on Sunday. I wish to say right here, however, that there are not any more dishonest men engaged in the milk business than in any other business, possibly less. The relation existing between milk-dealer and milk-inspector is much more cordial than it would be supposed; the Department of Health is always fair, and the milk-dealer is absolutely sure of that fact, for he

¹Philadelphia Medical Journal, January 6, 1900.

²Roberts, Philadelphia Medical Journal, Jan. 6, 20, and 27, 1900.

³Philadelphia Medical Journal, January 20, 1900.

⁴The patient, a young man, was put under the X-ray after violent athletic exercises which, of course, dilated his heart.

very seldom contests nowadays the analysis or the result of analysis of a sample of milk.

There are now employed by the Department of Health ten milk-inspectors in the borough of Manhattan. I am using the borough of Manhattan for an illustration, although the same system prevails in all of the boroughs. The borough of Manhattan is divided into nine milk districts, which makes it possible to have the entire borough constantly covered; the tenth inspector is required to take the place of any one who should be taken from his work by sickness or other reasons; this inspector also makes sanitary inspection in places where milk is sold, when he is not otherwise engaged. The nine districts are so arranged that an equal number, or nearly so, of milk places come within the boundaries of each, which means about 650 in each district on the east side and 700 on the west side.

The milk-inspector is obliged to spend from 9 A.M. to 4 P.M. in actual inspections, after which he writes out a daily report of every place visited by him during the day, giving the time by hour and minute, the name and address of the milk-dealer, the permit number under which the dealer does business, and the temperature and lactometer standing of the milk so examined.

The report must be in the Chief Inspector's hands by 9 A.M. each day. On Monday morning a weekly report also is handed in giving the number of inspections made each day, as well as the total number for the week, his attendance at court, and arrests and fines also must be carefully recorded.

The following instruments and utensils are supplied to the milk-inspector, which he carries about with him in a suitable satchel:

A lactometer; a thermometer (dairy style); a cylinder of tin in which to float the lactometer; lead seals and wire for sealing sample-bottles of milk; one seal punch with two dies, one impressing the lead with "Health Department, Manhattan," the other the inspector's letter which has been given him for his identification as A, B, C or D, etc.; a writing diamond, to mark sample-bottles; six ounce-bottles with two holes in neck opposite each other, through which the wire is passed holding the cork immovable, unless the seal and wire are disturbed, for dealer's sample; four ounce-bottles for samples of milk for analysis at laboratory; one box of labels, gummed on back, for marking above sample with inspection number, sample number and lactometer standing at 60° F.; a book of 50 labels to mark dealer's sample, as also a stub corresponding with same, which is afterward attached to the analysis report; a book in which is reported the year, month, day, hour and minute when inspection is made, the number of inspection, the name and address of the dealer, number of years in business, number of quarts sold per day, number of permit under which business is done, name and address of the wholesale milk-dealer from whom he receives his supply, the gross and net lactometer standing and the temperature of the milk exam-

ined, also physical properties, odor, taste and appearance, the name of person present when examination is made, whether proprietor of store or representative, and, lastly, the mark which is found on top of cover of milk-can.

The mode of inspection is as follows: When an inspector enters a place where milk is sold he announces this fact to the proprietor of the place or his representative. After he has satisfied himself that the milk is properly cooled and utensils for measuring are clean, he stirs the milk thoroughly, fills his tin cylinder within two inches of the rim, leaving room for displacement by lactometer; the lactometer is then carefully lowered into the milk care being taken that the stem is dry. While the lactometer is allowed to come to rest, the thermometer is used to carefully note the temperature, this and the lactometer's reading are carefully entered in the inspection-book and for every three degrees of temperature below 60° F. one degree is deducted on the lactometer, or added if the temperature is above 60° F. Should the milk present a good appearance and stand somewhere between 108 and 112° on the lactometer at 60° F., the milk-inspector will pronounce the milk good, but if the milk should stand below 108 or above 112° net on the lactometer, and not be of good physical appearance, he will consider the milk suspicious and proceed to take a sample from same, as follows: The proprietor of the milk-store, or his representative, will be asked if the milk is for sale. Should he state that it is for sale the inspector will ask him to stir the milk well himself and again test with thermometer and lactometer, calling the proprietor's or his representative's attention to the various points; should it be possible to procure another witness to the proceedings it is desirable to do so. The six-ounce bottle mentioned above is then filled up within a short space below the neck to allow sufficient room for expansion and the cork forced in well below the two perforations mentioned above. The wire is then passed through the orifice in the bottle, forced through the cork and out through the opposite perforation in the bottle, and then wound twice around the neck of the bottle and over the groove in the lead-seal, which is then forced down over the wire by the punch until it presents a quite flat appearance with the imprint on both sides, as described above, and from which the wire cannot be removed without destroying the seal and imprint. The sample is then labeled with the part of page which corresponds with the stub described, and which is gummed on the reverse side. Both stub and label are counterparts of each other bearing number of inspection, date, name and address of dealer, reason for taking sample, inspector's name and the number of sample. This bottle is then sealed and labeled as described above, and handed to the dealer or his representative, to be held by him, or to be given to a chemist for analysis if he so chooses. This is now done but seldom, dealers, both wholesale and retail, are so convinced of the absolute correctness with which analyses are made at the Depart-

ment laboratory that they usually instruct their lawyers to concede the analysis. The four-ounce square bottle is now filled with some of the same milk, and to this is attached a square stick-label bearing inspection and sample number as well as inspector's letter described before. The inspector now proceeds to the laboratory of the Department. When he arrives there he will hand the sample bottle to the chemist or assistant chemist in charge, who will sign a receipt for same on a ticket made out by the milk-inspector, on which are again given the milk-dealer's permit number, year, month, day, hour and minute of inspection, but the space for the milk-dealer's name and address is left blank for the time being; the ticket also gives the wholesale dealer's name and address from whom the retailer receives his supply, and the number of specimens of milk examined, their standing both by lactometer, thermometer, and net, also physical appearance. As this ticket is used by the inspector on the stand in trials to refresh his memory, it is made out with great care, and gives in addition to the above facts the recorded numbers of the instruments used, for it has happened in some important trials that the correctness of the instruments has been questioned. For this reason as soon as a lot of lactometers or thermometers is received from the manufacturer they are carefully tested in our laboratory; if they come up to the standard they are accepted, numbered and the record of the same is kept at the Chief Inspector's office; if they are found to vary perceptibly they are rejected. The same ticket also records the fact whether the can from which the sample has been taken was wired, the amount of milk the can contained, the fact that the milk had been stirred by the proprietor or his representative, the marks found on shoulder and cover of can, the location of the can in the store or place in which the milk was sold; whether the can contained a dipper, whether this inspection was made on the regular routine inspection or upon a complaint from a citizen, the total number of cans examined at that particular inspection, the name of the witness present at the time of inspection, and also a space in which to record the date on which the warrant was obtained. In case of prosecution the number of the City Magistrate's Court, the date, when, and the amount of bail obtained, and, finally, the Court in which the case was tried and the amount of fine paid or the disposition of the case, whether dismissed altogether or sentence suspended. All this is recorded on the front of the ticket; on the reverse side is given, first, the receipt of the chemist for the sample, then the analysis as follows:

Water, per cent.; total solids, per cent.; fat, per cent.; solids not fat, per cent.; per cent. low in solids; per cent. low in fat; borax, present or absent; salicylic acid, present or absent; formaldehyde, present or absent; reaction, acid or alkaline.

The name of the assistant chemist who has performed the analysis is also given and is coun-

tersigned by the chemist. This completes the ticket, as far as the inspector can complete it at that particular stage. The ticket with the stub is then handed to the clerk in charge of milk analyses in the Chief Inspector's office, which ends the milk inspector's duty for the present as far as this particular sample is concerned. The clerk in charge of milk analyses, just mentioned, enters up all the facts given in a book in which spaces are provided for all the facts given above; the ticket is then placed in an envelope with others which may come in on the same day, giving the exact time when received from the inspectors, when forwarded to the laboratory and when received back again. After forty-eight hours the analysis is finished and the chemist will then fill up the space provided for percentages of water, total solids, fat, etc., and whether the milk has been found unadulterated or short in total solids or fat, giving the exact amount. The ticket is then immediately returned by the chemist to the clerk in charge of milk analysis, who enters up all the various facts found by the chemist and then fills in the name and address of dealer from the stub. The ticket is now ready for the Chief Inspector who will determine by the percentage of fat or total solids shortage whether an arrest is to be made or not. The rule followed at present is that the dealer is to have the benefit of the doubt up to four per cent. of solids and nine per cent. of fat, but if the shortage is five per cent. or over in total solids, or a shortage of ten per cent. or over of fat, prosecution is at once to be started; such tickets are, therefore, signed by the Chief Inspector and stamped "Arrest" or "Do not arrest," and after the ticket has been countersigned by the Sanitary Superintendent the clerk in charge of milk analyses will notify the milk-inspector that a ticket is awaiting him at the office for arrest. The milk-inspector upon receipt of the ticket prepares an affidavit of the facts in the case and asks for a warrant for the milk-dealer's arrest in the City Magistrate's Court in whose districts the violation has taken place. This warrant is usually granted and a day of hearing is set, the warrant is served by a court officer in as inoffensive a manner as possible; that is, by simply notifying the dealer that his presence is required in the court to which the officer is attached, for violation of the Sanitary Code by selling adulterated milk, and that probably it would be best for the dealer to bring with him a bondsman. At the day and hour set for the hearing the milk-inspector states his case and requests that the defendant be held under bond for trial in Special Sessions. The City Magistrate usually names a bail amount of \$100 which the milk-dealer furnishes through a friend, or in many cases the wholesale dealer who has furnished the milk furnishes the bail. If the defendant is represented by counsel, the counsel frequently requests a hearing, but the outcome is usually the same. After a lapse of but a short time the case is set down for trial at Special Sessions, where the judges without exception have taken great in-

terest in these milk cases; some of them even have taken the trouble to inform themselves of the various stages of analysis, being present during an actual analysis at the laboratory. They are well posted in relation to the provisions of the Sanitary Code and the agricultural laws of this State relating to milk and dairy matters, total solids, fat, solids not fat, the name of antiseptics and like terms and their meanings which are usually so puzzling to outsiders, and even lawyers who try these cases understand them as well as any chemist. It is directly due to this intimate knowledge of terms, facts and matters connected with the scientific part of milk analysis, and the recognition of the earnest efforts of the Health Department to improve the milk supply of the City of New York, that it has been able to carry on milk-inspection with satisfactory results; for what would all this work amount to did not the courts so ably and conscientiously carry out their part.

Tickets which have been used for prosecution are filed in a record cabinet in alphabetic order, separately from those where no prosecution was deemed necessary, or where upon analysis of the sample it was found that the milk was unadulterated.

Since 1896 the Department of Health has required every dealer in milk to take out a permit, in order to better regulate the care of milk and enforce the Sanitary Code. A prospective dealer applies at the Department office in person for a permit by filling out an application giving his name and address, the kind of business he is engaged in, the amount of milk—approximately—he expects to sell per day, the dealer from whom he is to derive his supply, the hour of day the delivery takes place and the can-marks he finds on the cans, also whether he intends to handle any condensed milk in bulk, and, furthermore, where he intends to keep the milk in storage while selling, if in an ice-box or in tubs, whether such receptacles are connected with the sewer or not. This application he signs and is then given at once a temporary permit, which he may show to the inspector when he makes his customary round; for it is one of the milk-inspector's duties to at once report any places where milk is sold without a permit. The temporary permit, therefore, is required to prevent confusion and unnecessary reporting. After the application mentioned above is placed on file, the name and address is given to the milk-inspector who is making his sanitary inspection as mentioned at the beginning of this article. Should this inspector find that the place is in a sanitary condition he so reports at the office at once, and the application goes forward to the Board, and will very probably be granted at the next Board meeting. The inspector, however, may find that the place inspected is not in proper condition, and this may be due to various causes; the most frequent one is that there is but one room, without any partition, and the proprietor of the place, or his help, sleep in the rear part, or the rear part is used for other domestic purposes; or the place is kept in an un-

clean condition, or the receptacles in which the milk is kept are not proper; in all such cases the inspector will give directions as to what necessary changes have to be made to put the place in proper shape. A reasonable length of time is given to make the change, the regular permit in the mean time is withheld; if, however, at the next inspection nothing has been done to bring about the sanitary condition necessary, the permit will be refused and the dealer compelled to give up the sale of milk. After the granting of the permit the dealer calls for it, issued to him without charge but it is revocable at the pleasure of the Board of Health, and must be hung up in a conspicuous place; for that purpose the permit is printed on heavy cardboard. This permit need not be renewed, but should a dealer be twice convicted of the sale of adulterated milk the permit will be taken from him, revoked, and the Department will never allow him to sell milk again. For this purpose a record is kept at the Department of all dealers and their convictions, on cards especially adapted for that purpose.

The wholesale dealer is obliged to furnish more direct information if he received his milk from the farms; he must give the farmer's name and address, the station from which the milk is shipped, and the railroad carrying same; also the time of arrival of the milk at the terminal station and the number of hours the milk is in transit. In addition to this he must furnish the name of the breed of cows the farmer keeps, the number of cows and the water-supply for the cows and the water used for cleaning cans and other utensils. If a creamery supplies the milk a special blank is filled out giving the name of every farmer contributing milk to this particular creamery and all other information required, as in the case of the shipment by the farms direct. The permits issued to the wholesale dealer will be as many as the wagons he employs; he is also obliged to give the name of the driver employed and the driver's address. These permits are to be carried by the driver, and the number of same must be painted on each side of the wagon in some contrasting color to that of the wagon and in letters one-half inch wide and two inches long. There are at present 7000 store-permits and 1800 wagon-permits in existence.

An arrangement exists between the Department of Health of New York City and the Boards of Health of the various States from which milk is shipped to New York to immediately notify this Department if any contagious or infectious diseases have broken out at any town, village or settlement within their jurisdiction from which milk is shipped, this information to be given by telegraph, upon receipt of which the Department takes steps to immediately quarantine the milk from that particular place. In order to do this effectively a record is kept at the Department of the various railroads and the districts they tap, the party who receives milk from such places in this city and the amounts received. This record has been on several occasions of the greatest ser-

vice in preventing the spread of disease. The compilation of this record is the work of one of the milk-inspectors now employed by the Department, and required rare tact and ability and unceasing work for nearly six months; not in the day-time, but principally at night and in all kinds of weather, because ordinary information could not be relied upon, but had to be verified by actual count and checking at the various depots, ferries and receiving stations, at the arrival of the milk-trains; but the work was splendidly done and the record is to-day, with occasionally changes and additions, one of the most highly prized in the possession of the Division of Milk Inspection.
46 Manhattan avenue.

SURGERY OF THE EPIPHYES.

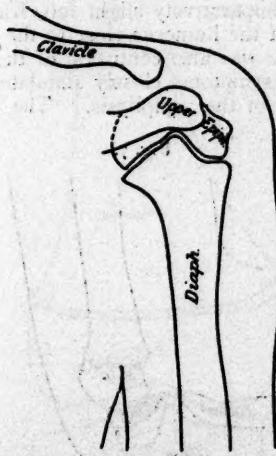
BY CHARLES L. SCUDDER, M.D.,

OF BOSTON;

SURGEON TO THE MASSACHUSETTS GENERAL HOSPITAL, OUT-PATIENT DEPARTMENT; ASSISTANT IN CLINICAL AND OPERATIVE SURGERY IN HARVARD UNIVERSITY.

MANY of the epiphyseal separations are mistaken for fractures in the neighborhood of the epiphyses. The Roentgen ray is revealing with a great degree of accuracy the lesions after traumatism to joints. Along with perfection of diagnosis comes obligation to correct deformity in order to secure greater functional usefulness. This obligation, because of perfection of aseptic

Fig. 1.



Normal epiphysis of upper end of humerus in a boy aged seven years.

technic, necessitates the open incision of many closed fractures and epiphyseal separations. To state all the conditions under which fractures and separations should be operated upon is impossible until more experimental work is done and the results are fairly compared.

Poland and Bruns, in 1884, each advised operation when the deformity following the injury to the bone could not otherwise be reduced, or could not be held reduced. As in all operations involving joint surfaces, the surgeon should be skilled

in aseptic technic and every minute detail of operative surgery should be carried out with the greatest care.

The publication of John Poland's¹ book upon the traumatic separation of the epiphyses, pub-

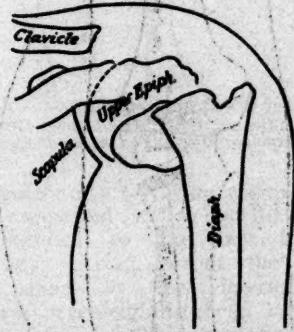
Fig. 2.



Fracture of diaphysis of humerus close to epiphysis. Epiphysis injured, but not displaced.

lished in 1898, establishes a scientific basis upon which the surgery of the epiphyses may rest. It is a valuable work, not alone for the original investigations made by the author, but for the great mass of scientific material systematically presented. It is exhaustive and extremely suggestive. The development of the epiphyses of the

Fig. 3.



Fracture of the diaphysis of humerus close to the epiphysis, as in Fig. 2, before attempt at reduction.

long bones should be carefully studied. The important details in the anatomy of the epiphyses should be constantly in mind during the examination of an injury in the neighborhood of joints.

The following cases of surgery of the epiphyses are reported:

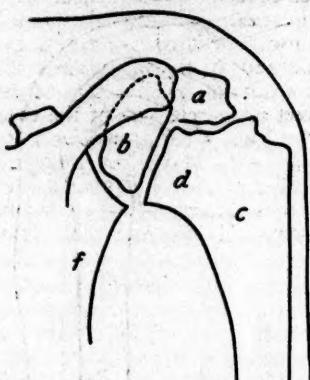
Case 1.—In June, 1899, I saw, in consultation with Dr. Godfrey of Littleton, Mass., a boy four-

¹ Traumatic Separation of the Epiphyses; John Poland, F.R.C.S. London: Smith, Elder & Co., 15 Waterloo Place, 1898.

teen years of age who had fallen from the roof of a shed and sustained the following injuries: Separation of the lower epiphysis of the left humerus, with a dislocation of the diaphysis of the humerus forward through the skin upon the outer side of the upper arm, and a closed fracture of

Two years and two months after the accident all movements of the forearm and elbow were normal. The carrying angle was lost and the left hand and forearm were smaller than the right. The humerus measured the same upon each side from the acromion to the external condyle.

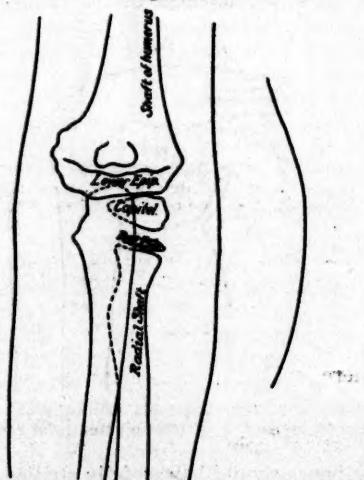
Fig. 4.



The same case as Fig. 1. Skilgraph taken six months after the injury.

the radius and ulna of the same arm at the junction of the middle and lower thirds. The bone was very thoroughly cleansed by scrubbing with corrosive sublimate, the wound of the soft parts was completely cleansed with the same solution. The wound of the soft parts was enlarged in order to admit of easy access to the seat of

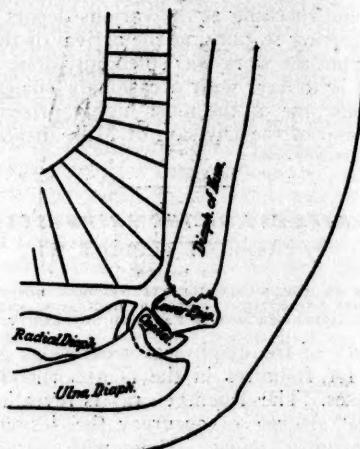
Fig. 5.



Normal elbow. Forearm extended. Note the relations of the epiphyses.

fracture. The joint was found open. A counter-opening was made on the inner side of the arm to allow of more thorough cleansing of the deeper parts of the wound. Small wicks were left in each wound. The arm was put up in a plaster-of-Paris dressing, the forearm semisupinated,

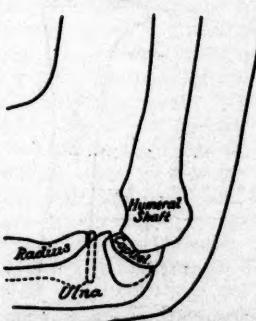
Fig. 6.



Separation of lower humeral epiphysis. Immediately after reduction. Internal angular splint in position. Arm at right angle.

Case II.—A boy, seven years of age, as a result of a comparatively slight fall, fractured the diaphysis of the humerus close to the epiphyseal line. There was also contusion of the epiphysis itself. The symptoms closely simulated those of separation of the epiphysis. The boy pre-

Fig. 7.

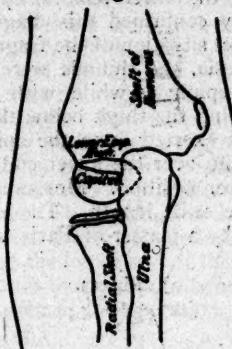


Separation of lower humeral epiphysis. Six months after the accident. Arm at right angle. Callous swelling on humeral shaft. Note position of capitellum.

sented a much swollen shoulder, upon the anterior surface of which was a prominence below the normal place for the head of the bone. The head of the bone was felt to be in the glenoid cavity. The upper end of this prominence was continuous with the shaft, was rather smooth, and projected like a shelf upon the anterior part of the shoulder. The prominence moved with the

movements of the humeral shaft. Muffled and cartilaginous crepitus was felt very distinctly upon moving the shaft of the humerus while the head of the bone was held fixed. There was shortening of the left humerus. Measurement was taken from the acromion to the external condyle of the

Fig. 8.

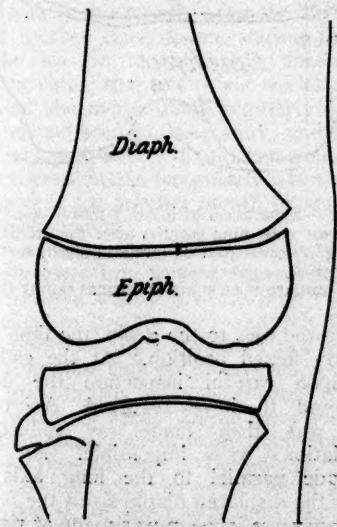


Separation of lower humeral epiphysis. Six months after the accident. Arm in extension. Humerus thickened at line of diaphyseal junction.

humerus. The tracings of skiagrams taken the day of the accident and of those taken six months later are extremely instructive. Functionally the arm is perfectly useful. Extreme abduction is very slightly limited. (See Figs. 1, 2, and 3.)

Case III.—A girl, six years of age, after

Fig. 9.



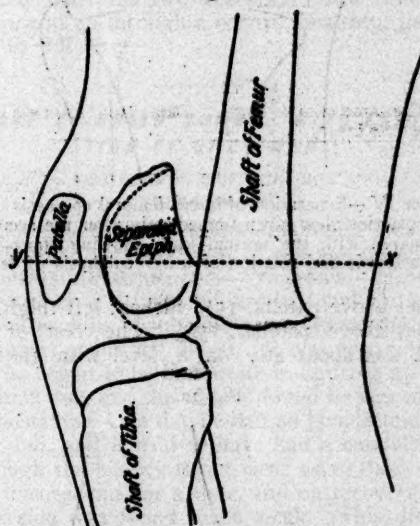
Case IV.—Normal knee of a boy 11 years of age. Epiphyses in anteroposterior view.

slight trauma to the elbow, showed a separation of the lower humeral epiphysis. There was present unusual lateral mobility at the level of the epiphyseal line. The lower end of the diaphysis of the humerus projected slightly forward, the

separated epiphysis was displaced with the forearm backward. Muffled crepitus was present. The deformity tended to easy reproduction. Considerable swelling of the elbow existed. There were no complications. The child was etherized and by traction and counter-traction upon the forearm and upper arm respectively the displacement was reduced. Immobilization was secured by an internal right-angled splint. After six months the functional usefulness of the elbow was good and all the movements of the elbow-joint were normal. The tracings of the skiagraph are correct interpretations of the condition present. (See Figs. 5 to 8, inclusive.)

Case IV.—On March 22, 1899, a boy, eleven years of age, entered my clinic at the Massachusetts General Hospital with a swollen and deformed knee. He was said to have caught the leg

Fig. 10.

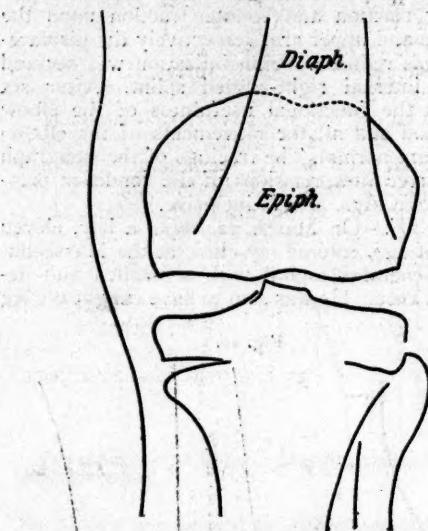


Case IV.—Separation of the lower femoral epiphysis. Lateral view immediately after the injury. Knee thickened through the level of the popliteal space. *y, x*.

in the spokes of a revolving wagon-wheel. The left knee appeared swollen and the leg was carefully steadied by the boy in order to avoid any jarring. From the anterior superior spine to the internal malleolus there was seven-eighths of an inch shortening upon the left side. This shortening was wholly in the thigh. The whole leg rotated inward, the great toe pointing toward the right. A slight abrasion was noticed over the patella. There was a distinct hollow just above the patella. A great fulness existed in the upper part of the popliteal space. The circumference of the knee over the middle of the left patella was $13\frac{1}{4}$ inches; over the right patella it was $11\frac{1}{4}$ inches. The circumference of the right thigh, upper border of patella, was 11 inches; left thigh, upper border of patella, $13\frac{1}{4}$ inches; right thigh, one inch above patella, $11\frac{1}{8}$ inches; left thigh, one inch

above patella, $12\frac{1}{2}$ inches; right thigh, three inches above patella, 13 inches; left thigh, three inches above patella, $13\frac{1}{2}$ inches; right thigh, six

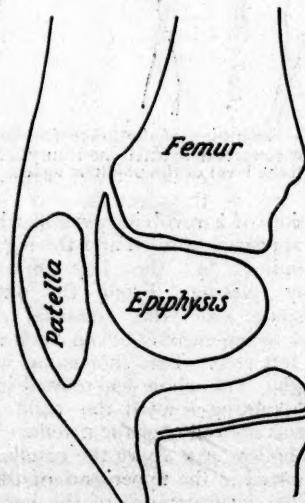
Fig. 11.



Case IV.—Separation of lower femoral epiphysis. Anteroposterior view taken immediately after the accident. Compared with the normal knee showing shortening, displacement and rotation of lower epiphysis of femur.

inches above patella, $15\frac{1}{4}$ inches; left thigh, six inches above patella, $15\frac{1}{2}$. The crest of the tibia was apparently on a level with the an-

Fig. 12.

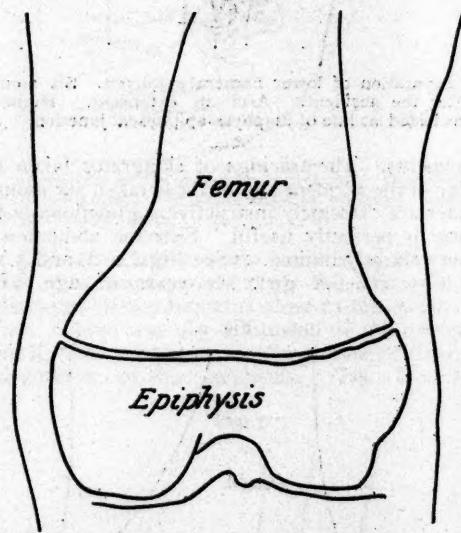


Case IV.—Separation of lower femoral epiphysis. Lateral view nine months after accident. See femoral epiphysis. Compare with Fig. 10, before operation.

terior surface of the patella, the tibia having been forced forward and at the same time drawn upward toward the lower end of the dia-

physis of the femur. Great lateral mobility existed at the knee-joint. The lower end of the femur (its epiphysis) could be palpated lying above the patella. The nature of the accident in a boy eleven years, the shortening of the leg, the deformity in lateral view, and the lateral mobility at the knee-joint, led me to make a diagnosis of separation of the lower femoral epiphysis. The Roentgen ray confirmed this diagnosis and located the exact situation of the fragments. Under ether anesthesia, the thumbs were placed upon the separate epiphysis while, with the hand and fingers grasping the thigh below the knee, great pressure was exerted upon the epiphysis which was felt to slip over the lower end of the femur into its proper position. Measurement showed both legs the same length. The knee was then immobilized by a plaster-of-Paris splint extend-

Fig. 13.



Case IV.—Separation of lower femoral epiphysis. Anteroposterior view nine months after the accident. Note thickening of lower part of humeral shaft, seat of callus and periostitis corresponding to the area of denuded bone. Compare with shaft of normal femur (Fig. 9).

ing from the toes to the groin, the limb being in a slightly flexed position. At the end of one week upon careful inspection the deformity was found to have recurred. An open incision was then made, as reduction by manipulation was impossible. An incision was made parallel to the long axis of the leg over the displaced diaphysis of the femur. A short transverse incision was made at right angle to the longitudinal incision to gain access to the epiphysis. By means of periosteum retractors, inserted above the epiphysis and below the diaphysis, great traction and counter-traction were exerted upon the epiphysis and diaphysis respectively, until the epiphysis was reduced. The periosteum was found stripped off the lower one-fourth of the shaft of the femur. The leg was

put up in a plaster-of-Paris splint with the knee flexed at an acute angle. In this position there seemed to be less likelihood of displacement. The boy made a good recovery. Several attempts were made under ether to make passive motion during the first two months after the operation. The present condition (ten months after the operation) is as follows: The left thigh is $\frac{1}{2}$ inch less in length than the right; the left thigh is $\frac{1}{2}$ inch less in circumference, and the left calf $\frac{1}{2}$ inch less in circumference than the right. Flexion is possible beyond a right angle. Extension is very slightly limited. The boy walks with a slight limp, which is growing less as he regains confidence in the limb. He has now good functional use of the knee on that side. The tracings of the skiagraphs after the operation are extremely interesting. The periostitis along the lower end of the shaft of the femur corresponds to the area of bone denuded of periosteum as seen at the operation. (See Figs. 9 to 13, inclusive.)

CLINICAL MEMORANDA.

A UNIQUE CASE IN OBSTETRICS.¹

BY FREDERICK H. PARKER, M.D.,
OF AUBURN, NEW YORK.

In April, 1897, I attended a young woman during her first confinement; everything passed off normally and easily and recovery obtained without incident.

About four or five months after the birth of this child the mother came to me stating that "she feared she was in trouble again; that she was nursing the child; that five or six weeks after the confinement she menstruated regularly (once or twice) and had seen nothing since, and believed that she was pregnant." I told her women were sometimes menstruated irregularly when nursing, and to leave it for another month or so, and return for examination.

I heard nothing more for several weeks, when one day she came in, and said "she was all right, had menstruated with a profuse flow (although not sufficient to disable her) and felt that she had been unnecessarily alarmed. I saw her occasionally after this, and she always acknowledged being in good health, and menstruated regularly until the winter of 1899. In the early spring she came to me and said she was pregnant and would need my services the last of December.

All went well (with the exception of an occasional aching in the right side) until the day before Christmas, when her husband came to me and said "two small cords have been hanging outside for twenty-four hours, with occasional light pains, and considerable backache." I hastened to her expecting to find a prolapsed funis. Instead, I was surprised to find two little legs, each about as large as a small lead-pencil, pre-

senting, with the cervix about one-half dilated, and membranes intact.

I introduced two fingers into the cervix, and without much effort extracted the skin and skeleton of a fetus about six inches long, which looked as though it had been put through a clothes-wringer (the viscera and brain had entirely disappeared) a small shrivelled umbilical cord being attached which broke off. Labor did not come on at once, but twenty-four hours later I delivered her of a well nourished and healthy infant of ten pounds. On examining the secundines I found nothing to indicate a placenta, excepting a portion of the sac of the infant, about four inches in diameter, which was thickened to about one-eighth inch. The mother made an uneventful recovery.

We hear of certain cases of superfetation, but it seems queer to me that a woman should carry a dead fetus for two years and then conceive again, and go through a normal, healthful gestation to full term.

A CASE OF BRAIN TUMOR, WITH EXHIBITION OF SPECIMEN.¹

BY HUGH T. PATRICK, M.D.,
OF CHICAGO, ILL.

THE patient from whom this brain was removed was thirty-five years of age and presented an interesting sequence of symptoms. He was time-keeper in a large billiard-hall and had contracted syphilis about nine years before the first symptoms of his last illness. It was first noticed that he began to be inaccurate in figuring up the amounts due, and the cashier found he was making mistakes. One day he had an apoplectoid attack, fell, and is said to have had a convulsion, although the history is not clear as to this. He was unconscious for a time, and on recovery his right side was found to be weak. This disappeared quite rapidly and he resumed work, but some time afterward he had two similar attacks, more severe, and attended with convulsive movements. Following these attacks the use of the right arm became impaired. He was sent to me by Dr. McMartin while I was out of town, and Dr. S. J. Walker took a careful history, examined him carefully, and concluded that the case was one of general paresis. On my return to the city I examined the man and concluded that it was not a case of general paresis. While the man had most of the mental symptoms of general paresis, was cheerful, inclined to joke and be facetious, had tremor of the tongue and of the lips, impairment of memory and stumbling speech, as well as pronounced increase of the knee-jerks, his pupils were equal and normal in every respect and he had decided paresis of the right arm. On account of the distinctly focal character of the paresis of the right arm, more than for any other reason, I believed the case to be other than general paresis. After a few weeks I made a more careful exam-

¹ Read at the annual meeting of the New York State Medical Society, held at Albany, January 30, 31, and February 1, 1900.

¹ Read at a meeting of the Chicago Neurological Society.

ination and found wasting of the muscles of the right arm, with partial reaction of degeneration, which rather inclined me to go back to Dr. Walker's diagnosis. The man had had syphilis some nine years previously, for which he was thoroughly treated here and at Hot Springs, but not for any great length of time. By this time he was having occasional spasms of the right arm, after each of which it would be much weaker for a time, then it would recover its previous strength, which, as stated, was not normal. He was placed on very active syphilitic treatment and improved considerably. His mental condition improved the most; the paresis of the right arm improved very little. He was so well mentally that his two brothers told me he was as well as ever, which, however, was not the case. There was still some mental impairment, and his speech was not quite as fluent as it should have been, although much better than before. The previously existing tremor, general nervousness and insomnia disappeared. Then he came to a standstill, improved no further and after a little time the localized spasms of Jacksonian fits in the right arm became more frequent and severe. He had neither headache, dizziness, vomiting, nor tinnitus, and choked disc was absent, so that tumor of the brain was excluded. The diagnosis lay between general paresis and brain syphilis, and, finally, I excluded the former because he did not get worse, and because the symptoms of paresis had cleared up considerably under specific treatment. I concluded that it was a case of syphilitic arteritis; that he had had three severe attacks of thrombosis, and that one of these had left a cicatrix in the cortex which had become non-progressive, which could not be improved by treatment and which accounted for the weakness in his right arm, as well as for the Jacksonian fits, because thrombosis is frequently the result of syphilitic arteritis, more frequently cortical than deep, and a cortical lesion, whatever it may be, is ordinarily the cause of focal fits. The case seemed to follow out my diagnosis nicely, for one day the man apparently had a more severe and extensive thrombosis, which left him with complete right hemiplegia, followed three weeks later by another attack coming on in the night, from which he died after three days. On looking at the brain after removal there was nothing abnormal to be seen on the surface, except a slight adhesion at one place over the arm center, on the left side where the pia had been adherent to the dura. Before cutting in to the brain, I attempted to locate the fissure of Rolando, but could not do so, which confused me not a little. Then I stripped off the membranes until satisfied that I had the fissure, which I found to be greatly distorted, the middle of it having been pushed forward. On incision at this point, I discovered a tumor larger than an egg. Dr. Herzog kindly made a microscopic examination and reports that the growth is a glioma. When the brain was removed and placed on the table, I do not believe any man could tell whether or not there was a tumor in its substance. It is a question whether, if

an incision into the brain had been made during life for the purpose of removing the growth with the oozing of blood which would have followed, even after careful ligation, it would have been recognized as a tumor if cut into, as the consistency and color were very much like that of the brain itself.

OBSERVATIONS ON A SPIRILLUM OCCURRING IN FALSE MEMBRANE ON THE TONSIL.¹

By CHARLES F. CRAIG, M.D.,
OF SAN FRANCISCO, CAL.

ACTING ASSISTANT-SURGEON U. S. A., LATE DIRECTOR OF THE
BACTERIOLOGICAL LABORATORIES OF THE STERNBERG
U. S. GENERAL HOSPITAL, CHICKAMAUGA
PARK, GA.

THE number of spirilla as yet described is comparatively small, and this is especially true with reference to those occurring in the human body. The cholera spirillum of Koch, the spirillum of Obermeier and the Finkler-Prior spirillum are the best known of this class of micro-organisms, but in addition to these a few others have been described as occurring in man, in health and in disease. The following list includes the spirilla which have been found associated with man and is, as far as I know, complete.²

Spirillum cholerae asiatica, of Koch, found in the discharges from, and in the cadavers of, cholera patients. It is aerobic or facultative anaerobic, sometimes produces pigment, liquefies gelatin, and is motile. *Spirillum Obermeieri*, found in the blood of sufferers from relapsing fever. Has not been cultivated. *Spirillum of Finkler and Prior*, found in the discharges from patients suffering from cholera nostras. It is aerobic, facultative anaerobic, liquefies gelatin, and is motile. *Spirillum sputigeneum* of Miller, found in the sputa in health. Has not yet been cultivated. *Spirillum dentium* of Arnt, found beneath the margins of the gums in healthy individuals. Has not been cultivated. *Spirillum or vibrio nasale* of Weibel, found in nasal mucus. Is aerobic, facultative anaerobic, does not form pigment or produce liquefaction of gelatin, and is motile. *Spirillum of Miller*, found in carious teeth. Is aerobic, facultative anaerobic, liquefies gelatin, and is motile. Does not produce pigment.

It will be seen from this list that our knowledge of the pathogenic spirilla is very limited, and each new fact concerning them is of interest.² I have, accordingly, in this paper briefly described a spirillum which was found in immense numbers upon and in a false membrane occurring in the tonsil. The history of the case is as follows:

Lt. R., a young man, complained of difficulty in swallowing and soreness of the throat on the right side. He did not have headache, fever, nor other constitutional symptoms. Examination of the throat showed an enlarged, slightly reddened

¹From the Bacteriological Laboratory, United States General Hospital, Presidio, of San Francisco.

²In Migula's latest monographic systematic treatment of this group, it is to be noted that most of these forms are relegated to the genus *microspira*. [Ed.]

right tonsil covered with a thick, dirty, white membrane, which occupied the posterior portion and extended to the surrounding mucous membrane of the fauces. The left tonsil was normal in size. The throat appeared somewhat inflamed in the region of the affected tonsil. The false membrane, upon closer examination, appeared irregular in contour, with sloping edges and uneven surface. It could be easily removed and left a smooth and but slightly reddened tonsillar surface beneath. The patient was ordered treatment and in a few days the membrane disappeared. An antiseptic gargle was used. Cultures on Loeffler's blood-serum were taken as the membrane looked like that of diphtheria.

Description of the Spirillum.—A portion of the membrane removed and examined by means of the microscope showed it to be composed of degenerated epithelium and of an immense number of very active spirilla. Coccis and bacilli were also present, but in very much smaller numbers. These spirilla were large, from 20 to 35 mikra in length, but very narrow. They resembled much the spirilla of relapsing fever in their size and shape and formed, in some places, large, entangled masses. They were very active, their movement being serpentine in character, as a rule, and very rapid, but sometimes vibratory and rotatory. In looking at a field filled with the spirilla, they resembled nothing so much as a mass of wriggling little serpents. The membrane was found to be composed almost entirely of epithelial débris and these bacteria. As it was thought that, perhaps, this organism might be either the spirillum described by Miller or Arnt, smears were made from material taken from under the gums and from between the teeth, but the spirilla were not found in them. They seemed to be limited entirely to the false membrane. They were very slender in comparison with their length and presented a homogeneous appearance throughout.

Staining.—They stained readily with all the ordinary aniline stains, as methylene blue, fuchsin, gentian violet, etc., but not very intensely. They stained uniformly throughout, there being no metachromatic granules present. Carbolic fuchsin seemed to stain them better than anything else. They invariably decolorized when Gram's method was employed.

Culture.—The blood-serum tubes first inoculated showed nothing but a mixed culture of staphylococci and a short, thick bacillus. Cultures were afterward made upon agar, blood-serum, and bouillon, but were always negative, showing that the organism could not be artificially cultured upon the ordinary nutrient media. This fact, together with the uncertainty caused by the mixture of organisms in the membrane, rendered animal experimentation useless.

The only spirilla occurring in the mouth with which these organisms might be confused are those of Miller and Arnt, but the morphology of these organisms is entirely dissimilar. These are much longer and narrower, while the fact that

they could not be found around the teeth nor in scrapings from under the gums removes all doubt concerning their identity with the spirilla described by the investigators mentioned. The occurrence of spirilla in this situation in such large numbers is very interesting and their strict localization in the false membrane and tonsil would indicate that they were instrumental in the etiology of the condition present. In making smear preparations especial care was taken to secure material from the crypts of the tonsil, which were filled with exudation, and in such smears the spirilla were found in almost pure culture. Bleeding was not produced when the membrane was removed nor when the tonsillar crypts were emptied. Constitutional symptoms were not present and the only local symptom was the soreness of the throat. The membrane was thick and rather pulpy in consistence and very closely resembled, on inspection, a diphtheritic membrane, but here the resemblance ceased, as it was not adherent nor did it leave a raw or bleeding surface when detached. It differed from the exudation occurring in tonsillitis in that it was so easily removed, even from the crypts, while the tonsil itself was but little enlarged and not very painful.

The chief points of interest connected with this organism are: Its large size, its extreme activity, its decolorization by Gram's method of staining, and its occurrence in almost pure cultures in a false membrane of which it formed a considerable part, and in the crypts of the diseased tonsil. The case is of further interest because of the resemblance of the false membrane to that of diphtheria, and as showing the value of a microscopic examination of the exudate in all tonsillar affections.

MEDICAL PROGRESS.

Apomorphine in Tachycardia.—Attacks of tachycardia, idiopathic in nature, or accompanying valvular lesions, are oftentimes only slightly amenable to treatment, and any new, successful remedy is gladly received. P. Zenner (*N. Y. Med. Jour.*, March 3, 1900) claims that he has been successful in stopping such attacks in several cases by the hypodermic use of apomorphine in doses sufficient to cause nausea and vomiting. After being used in the same case for several attacks it seems to partially lose its power.

Camphoric Acid in Night Sweats.—At a lecture given at the Cleveland General Hospital, by J. B. McGee (*Bull. Cleveland Gen. Hospital*, Oct., 1899) reports on the value of camphoric acid as an antisudorific especially in the collusive sweats of tuberculosis. There are other agents, as atropine, for example, which may be equally efficient, but whose coincident effects are disagreeable. Camphoric acid rarely disagrees with the patient and may be given either dry on the tongue or in a wafer. Fifteen to twenty grains are usually sufficient, although much larger quantities have been used with no serious results. It

is best given shortly before bed-time for its absorption is slow. When taken for a time it is said also to lessen the profuse expectoration so often present.

Pathology of Serous Inflammations.—By the injection of turpentine and iodine into the pleural and peritoneal cavities of animals, R. Heinz (*Münch. med. Woch.*, Feb. 18, 1900) has been able to study the minute changes caused by these irritants. With turpentine the membranes appeared covered with numerous sharply circumscribed vesicles consisting of aggregations of leucocytes, which in the center of the mass had undergone necrosis. In the immediate vicinity of these heaps the serosa was degenerated and the underlying external muscular coat of the gut also participated in this change. Owing to the fact that connective tissue cells were intermingled with the white cells, it was safe to infer that the exudation took place into and not upon the superficial layers of the tissue. With iodine a rich deposit of fibrin occurred and the author, being mindful of the disputed origin of this substance, followed the pathological changes from their earliest appearance in the hopes of obtaining direct evidence of fibrinous cell-degeneration. Microscopically the exuded matter was found to be made up of a network of fine fibrillæ, but no tissue cells were present. In other sections, opaque spots were seen studded through the field, which proved to be normal desquamated elements from the superficial layers of the serosa. Furthermore, the layer of endothelium was not infrequently seen to pass under the fibrin plaques, which, of course, demonstrated that the latter were exudations from the capillaries and no direct proof of the cell origin of the fibrin could thus be obtained. In the later stage, the endothelium took on marked proliferative action with the formation of numerous villous processes covered by embryonal cells, the subjacent lung tissue shared in this process and a cross section here gave a picture not unlike that of acinous glands. In the peritoneum the injection of iodine was followed by agglutination between the coils of intestine. Preceding this, however, there always was a falling-off of the endothelial cells, which normally prevent adhesion between adjacent tissues.

Ureteral Calculus.—H. A. Kelly (*Jour. Am. Med. Assoc.*, March 3, 1900) reports a case of ureteral calculus in the diagnosis and treatment of which several new features were introduced. The patient had an attack of renal colic after unusual exertion. There was no abdominal tenderness, but vaginal palpation revealed a hard oblong body in the left ureter. This was exquisitely tender and was situated half-way between the internal urethral orifice and the cervix. Cocaine was injected into the tissues about this mass, through the vaginal wall. The cystoscope revealed an abdominal left ureteral orifice, with everted, reddened mucous membrane. A ureteral sound failed to elicit a click. The orifice

was determined to be strictured, so a dilator was introduced and the orifice stretched. After the ureteral sound failed to detect a stone, the end of an ordinary renal catheter was dipped into a mixture of melted wax and olive oil, which forms a perfectly smooth bulb on the catheter tip. This was introduced into the ureter without touching anything, and pushed up to the kidney. When it was withdrawn, the wax showed a series of parallel scratches from end to end, which could have been caused only by a stone. A slight fragment of stone also adhered to the wax. Since the ureter above the stone was dilated it was found impossible to grasp the stone, so the ureteral orifice was again carefully stretched and the patient placed in bed. Inside of twelve hours the stone came out with difficulty. The use of cocaine in this region opens up an interesting field. The ureter could be opened through the vagina, for the removal of a stone. The wax-tipped bougie demonstrated the presence of stone after the sound had failed, and if the catheter were waxed at intervals from the tip down one could quickly determine the precise location of the stone.

Cinnamic Acid in Consumption.—The stir caused in medical circles within recent years by the reports of undoubted cures of tuberculosis by the use of cinnamic acid injections has led F. Fränkel (*Deutsch. Arch. f. klin. Med.*, Bd. 65, Hft. 5 and 6) to thoroughly review the subject and to add some experience of his own, which on the whole, however, are not encouraging. Severe cases showed but a transient relief and soon a return of the old symptoms with increased force. Of more favorable subjects, twelve received systematic intravenous injections for seven weeks, with the result that 3 died during this time, 1 became worse, 3 showed no change and 5 experienced some relief, but of these only one to a marked degree. Hemoptysis was frequently brought on by the injections. Laryngeal phthisis gave still greater disappointment, as did also lupus, which did not seem to react at all except when the acid was directly injected into the nodules; this, however, might have been due to the alcohol used as a solvent. By inoculating rabbits with tubercle bacilli and then at once resorting to long-continued injections of cinnamic acid, absolutely no immunizing powers could be detected.

Benzoic Acid and Urine.—The effect of benzoic acid in restoring the normal acidity of urine is well known. Having noticed in a number of cases that benzoic acid seemed to have little or no influence in increasing the acidity of urine already normally acid, William W. Ashhurst (*Phil. Med. Jour.*, Feb. 24, 1900) experimented as follows upon two dogs. The urine of the dogs was first tested for some days to ascertain the average normal acidity, the tests being made of each portion as it was passed, and of the whole twenty-four-hour quantity at the end of that time. The method of determining the degree of acidity was to take 1 c.c. of urine mixed with 10 c.c. of water and 1 c.c. of a one per cent. alcoholic so-

lution of phenolphthalein, and to allow a one per cent. solution of potassium hydrate to slowly run in from a burette, noting the quantity of the latter required to produce a distinct pink tinge. Later each day was given daily one gram of sodium benzoate hypodermatically for a number of days and similar tests made, and still later two grams were given daily. The writer presents the results of twenty-two tests made under these three different conditions. He also noted for a number of days the quantity, the specific gravity, and the acidity of his own urine. Then he took six grams of sodium benzoate daily for a number of days and noted the same points, and found by comparing the averages that while taking the sodium benzoate the specific gravity was scarcely changed, the quantity of urine was somewhat increased and the acidity slightly diminished. These results corresponded with those obtained from the examination of the dog's urine. He also found that the administration of sodium benzoate had a most marked and positive influence in indefinitely postponing the occurrence of the alkaline fermentation. This explains the well-known effect of benzoic acid on ammoniacal cystitis. It is not that acidity is increased, but that ammoniacal fermentation is prevented from taking place in the residual urine. Judging from the well known beneficial effect of benzoic acid in cases of cystitis where there is no residual urine and no ammoniacal fermentation taking place, it would seem that this acid has a distinct germicidal or antiseptic action. In a specimen in which the presence of bacteria was noted, they were notably less while the benzoate was being given. Ashurst sums up the effect of benzoic acid upon the urine thus: There is (1) an inconstant diuretic action, accompanied by a slight diminution of the acidity of the urine; (2) a retardation or absolute prevention of the occurrence of alkaline fermentation; (3) an action in nature germicidal or inhibitory, to the growth of certain micro-organisms either within the bladder or when introduced into the urine after voiding, these susceptible organisms including especially those which tend to produce the alkaline fermentation, but which develop in the urine while it is still acid.

Ligation of Hemorrhoids.—J. B. Bacon (*Jour. Am. Med. Assoc.*, March 3, 1900) believes success in the operative treatment of hemorrhoids depends so much on careful attention to detail that he publishes his technic. At night, pil. hydrarg., gr. vi, is given. Next morning on an empty stomach, a Seidlitz powder is given and repeated every half hour until the movements are free from fecal matter. Until the second day thereafter the patient is kept on a liquid diet and strychnine, gr. $\frac{1}{50}$, every six hours, and the operation is then performed. With acutely inflamed piles the operation is done as soon as the bowel is empty. The patient and the operator's hands and instruments must be thoroughly clean. For ligatures, fine silk is to be preferred, since coarse silk can not be tied tight enough to cut through the

pedicle in three or four days, and is apt to leave a bleeding point when it is finally carried away. One should remove the redundant skin-tags opposite the internal piles. In most cases the anastomotic veins, between the internal and external groups of veins, are varicosed, and must be dissected out and ligated. This insures the patient against a recurrence. After the piles are removed the operative field is well irrigated, a half-inch rubber tube, wound with sterile gauze, smeared with vaseline, to an inch diameter, inserted with the aid of a bivalve rectal speculum three inches (*i.e.*, above the circular fibers of levator ani) and a dressing firmly fastened on. This tube is left four days when a Seidlitz powder is given before breakfast, and repeated in one-half hour. As soon as the bowel feels like moving a two-quart enema is injected through the tube which is then plugged. The tube and gauze will be passed with the movement, with little disturbance of the wound area. The wound is washed daily with 1-2000 corrosive sublimate solution, after the bowels have been moved by enema. For ten days the patient must use a bed-pan, since a movement in the sitting posture invariably tears the wound area open. The occasional incidence of post-operative hemorrhage necessitates a careful watch for the constitutional signs of bleeding, since the blood collects in the rectum. One should take special notice after each movement, since hemorrhage usually results from a ligature being prematurely torn off.

Gastrostomy.—J. Braquehaye has written a monograph on gastrostomy (Paris, Ballière et fils, 1900) in which he enumerates twenty-five different methods establishing a gastric fistula. He especially advocates that of Fontan, which is essentially as follows: The abdominal wall is incised and the stomach seized with a pair of forceps as near the lesser curvature as possible. A portion of it is drawn out of the wound in the form of a little cone. The base of this cone is stitched to the abdominal wall (visceral to parietal peritoneum), and the point of the cone is pushed into the gastric cavity. The wound in the abdominal wall, and the folds in the stomach at the base of the cone, may be narrowed by stitches, after the point of the cone has been punctured with a fine scalpel and a soft rubber catheter, No. 24 F., introduced.

Iodophile Leucocytes.—Following the researches of Czerny, in 1893, and of Kaminer and others since, F. Hofbauer (*Centralb. f. Innere Med.*, Feb. 10, 1900) reports extensive studies of these leucocytes in diseases of the blood. He used an air-dried blood spread and exposed it for one minute to a mixture of iodine one part, potassium iodide three parts, water one hundred parts, and acacia to give a syrup consistency. The findings so far indicate that in pneumonia, primary pernicious anemia, and well-marked leukemia, and sometimes in pernicious anemia secondary to severe disease, some or all of the leucocytes contain a substance which stains red with iodine. Apart

from these conditions a distinct iodine reaction, even in only a few of the leucocytes, indicates that an active process of suppuration is going on. The staining substance may be in the form of irregular granules, or be diffused throughout the cell-body.

Heronin.—As a respiratory sedative, R. L. Daly (*Boston Med. Surg. Jour.*, Feb. 22, 1900) finds that heroin has the following advantages over morphine: (1) It prolongs respiration, and at the same time increases the volume of each respiration, making it a remedy much to be desired in the treatment of cough; (2) it is not a hypnotic; (3) absence of danger of acquiring the habit; (4) it does not weaken the respiratory apparatus; (5) it does not cause unpleasant disturbance of the stomach or intestines; (6) it can be prescribed in cases in which heart complications occur; (7) the ratio of the therapeutic dose to the toxic dose is considerably smaller than that of morphine. He cites in detail seven cases of pulmonary tuberculosis and one of tubercular laryngitis taken at random from over one hundred cases in which he has administered the drug, illustrating its prompt and beneficial action on the cough, respiration, and secretion. In all these cases, after other drugs had been tried without success, in about three days after the administration of heroin, in half-grain doses three times a day and once at night, was begun, the cough became loose and less frequent, expectoration became free, and there was less dyspnea. At the end of a week there was no dyspnea, the cough had diminished to a marked extent or had disappeared, and all pain was absent. From the beginning of the administration of heroin the respirations, carefully noted in nineteen cases, were decreased in number from two to seven per minute. In certain cases when the drug was stopped for a week the respirations again became more rapid. The effect of the drug upon night-sweats was also marked. In one case almost everything had been given to diminish the night-sweats, but without avail. Then heroin, gr. $\frac{1}{2}$ t.i.d. and at night, was administered in addition to atropine sulph. gr. $\frac{1}{50}$, at night and on the third night of its administration the sweats decreased to a great extent, and on the fourth ceased altogether. Atropine sulph. had been given with mist. codeine for some nights in this case without result before the heroin took the place of the mist. codeine. In the case of tubercular laryngitis, heroin, gr. $\frac{1}{12}$ every three hours, kept the throat in a condition of anesthesia and relieved the sore throat and the pain very considerably.

Prognosis in Appendicitis.—After considering the pathology of appendix lesions, H. A. Coley (*Lancet*, Feb. 10, 1900) proceeds to the question of prognosis, which depends on the virulence of the infective agent, and on the nature and extent of the process in the appendix itself, and more particularly in the general peritoneal cavity. Clinically the prognosis must be arrived at by balancing the data derived from the local symptoms,

local signs, general symptoms and the progress of the case. Of the local symptoms pain is the most constant, the distribution, character and severity of which are of much significance. The initial pain is usually in all cases referred to the umbilical region or the general abdominal cavity. In mild cases it soon localizes itself in the right iliac fossa: In perforative cases it is more sudden, more severe, and more persistently generalized. Pain associated with definite collapse assumes maximum importance since it indicates perforation, or rupture of an abscess wall. An interval of quiescence following an acute onset of pain must not mislead. In some cases there is a dull aching pain or slight colicky pains for a day or two, and then a paroxysm of acute pain with vomiting and febrile disturbance, the later pains being due to peri-appendicular inflammation. Sudden increase of pain in any case calls for most careful consideration and often indicates operation. Persistence of severe general pain is usually evidence of a grave lesion, since in mild cases it soon becomes localized and less intense. Persistent severe pain localized to the appendix is especially apt to accompany concretion. Pain much increased by respiration indicates peritonitis. While the kind, onset, severity, and persistence of pain are important indicators, yet it must be distinctly remembered that there may be a very severe lesion of the appendix, especially gangrene, with little or no pain. Vomiting may accompany, precede or follow the pain, but is usually an initial symptom. Frequent, severe, and especially persistent or recurrent vomiting indicates a serious lesion. Absence of vomiting proves nothing. Natural action of the bowels is favorable. Persistent hiccough is unfavorable. Among the general symptoms are two useful guides, the temperature, respiration and pulse considered conjointly, and the general aspect of the patient. Temperature alone is misleading. In at least four appendical conditions it may be normal or subnormal, *viz.*, collapse after perforation or gangrene; general septic peritonitis; strictly circumscribed abscess, and mild appendicitis without peritonitis. High fever continued for the first few days usually means a severe infection. A fall of temperature, if accompanied by general improvement, is reassuring, but not otherwise. A secondary rise of temperature means spreading infection. Fever persisting after eight or ten days means local abscess, and becomes intermittent or remittent. The pulse is of more prognostic value, but one must be careful to consider its relative, rather than absolute, frequency, and its temporary character rather than any temporary alteration. High pulse means a severe infection, very often wide peritoneal infection, especially if pulse-rate and temperature are disproportionate. A pulse-rate above 120 leads one to expect local suppuration or general peritonitis. Rapid, shallow respirations indicate peritonitis. Of local signs, immobility is constant, at first localized to the right side. If it becomes general it means

general peritonitis and the prognosis is correspondingly grave. Distention may or may not be present, but when marked is of grave omen. The area of tenderness gives an idea of the extent of peritoneal inflammation. Persistent or increasing local tenderness may be almost the only sign of localized suppuration. Tumor or deep-seated resistance is very common but is often not discernible, so that it is of limited prognostic significance. On the whole, the presence of a tumor is reassuring as it indicates a localization of the process. The course of the disease during the first twenty-four hours furnishes important data as to prognosis based on the above observations. One must always be on his guard against a treacherous remission of symptoms. As to recurrence, various observers estimate from 30 to 50 per cent. of recurrences in cases not operated on. Recurrence usually appears within the first year. A mild first attack is often followed by recurrence. If convalescence is slow, with persistent local pain, tenderness, or swelling, the probability of recurrence is great. If, in the interval, there is occasional pain, irregularity of the bowels, local tenderness or rigidity, chronic appendicitis probably exists.

Genito-Urinary Diseases.—After briefly reviewing the different means employed in different cities of the world to control or suppress prostitution, Ferd. C. Valentine (*Jour. Am. Med. Assoc.*, March 3, 1900) gives as his opinion that it is impossible for the State to regulate prostitution. If the State cannot regulate prostitution, can it suppress genito-urinary diseases? It is shown that even regular examinations of public prostitutes do not prevent them from becoming infected with gonorrhea and inoculating those with whom they have connection during the time from one examination to the next. But statistics seem to show that more men are infected from so-called "respectable women," i.e., clandestine prostitutes, than from public prostitutes. There is, therefore, a source of infection which can be controlled in no way by the State. Inasmuch as illegitimate relations between the sexes cannot be prevented, and regular examination of public prostitutes does not necessarily prevent infection, while clandestine harlots cannot even be examined regularly, Valentine thinks that education as to the dangers of gonorrhreal infection, and its sequelæ, must be the means used against the invasion of the disease. He has found in men, otherwise highly educated, a most complete and criminal ignorance of even crude outlines of genito-urinary physiology, and to this ignorance they owed their sufferings. If a man knows that the gonococcus may invade all parts of his organism, that he may lose his life from gonorrhea, that he may become hopelessly blind in consequence, that he may become a mental and physical wreck, and that the disease may, through him, cause the death and disabling of others, perhaps innocent ones, he will not neglect himself when he becomes infected, but will seek a reputable physi-

cian, that the disease may be cured as quickly as possible, thus striving to prevent its invasion into deeper and more remote organs. The writer makes the following suggestions: (1) Sufficient of the physiology and pathology of the genito-urinary apparatus should be taught in institutions for higher education, to convey to students the dangers of genito-urinary diseases to themselves and to others; (2) similar instruction should be given in schools attended by boys at the age of puberty; (3) no man who has ever had gonorrhea should be allowed to marry until it is proved by a physician that he cannot infect his wife; (4) regular physicians should be elected, by their societies, to deliver evening lectures to the public on genito-urinary diseases; (5) every father should be taught to warn his sons of the dangers of genito-urinary diseases; if the father is unable to do so, the family physician should do it; (6) every medical society should elect its most competent member to write at least one article on the subject, worded for laymen's comprehension, and to be published under the auspices of the society.

Pelvic Inflammations.—In cases of metritis and salpingitis Labadie Lagrave (*Jour. de Méd. de Paris*, Feb. 11, 1900) cleanses the vagina with 1 to 2000 mercuric chloride solution, inserts a laminaria tent, and packs the vagina with iodoform gauze. After twenty-four hours a larger tent may be inserted, and when the cervix is well dilated an intra-uterine douche is given, and the uterus packed with iodoform gauze soaked in creosote-glycerin (1 to 3). In carrying out these procedures the cervix should not be drawn down, as traction on the peri-uterine structures may provoke an extension of the existing pelvic inflammation. The packing is to be renewed every four days for two or three weeks. If the uterine mucous membrane is rough with hypertrophied papillæ and villosities, the above treatment should be preceded by curettage, care being taken to curette about the mouths of the Fallopian tubes so that these may drain freely into the uterus. Metritis, lymphangitis, and even salpingitis are often thus cured without resort to operation; and even if the uterine orifice of the tube is obliterated, the salpingitis, although not cured, will be benefited by the reduction of the general inflammation. The author advises against laparotomy except in cases of very large pus-tube.

Dublin Fever.—This is the name given to a form of influenza by H. FitzGibbon (*Dublin Jour. Med. Science*, Feb., 1900). He divides influenza into three classes: (1) Simple influenza, the ordinary mild form; (2) pulmonary influenza, a severer form, complicated by bronchitis or bronchopneumonia, and (3) enteric influenza. This third form begins with chilliness, languor, pains in the back and limbs, and a dull frontal headache. This is followed in a few hours by an intense febrile disturbance, 104° to 106° F., with its usual accompanying symptoms, which persist twenty-four to forty-eight hours and subside rapidly. The temperature may fall below normal.

The condition of the patient, however, does not improve with the fall of the temperature, but the distressing symptoms persist and there is a condition of great nervous prostration, with insomnia and mental disturbance, similar to the neurasthenia of chronic alcoholism. With this nervous prostration there sets in a train of gastro-enteric symptoms, difficult to distinguish from those of typhoid fever, but without the characteristic temperature and diarrhea of that disease. This continues for an uncertain period, depending upon the resistive power of the patient. FitzGibbon was impressed by the similarity of severe cases of this class of so-called influenza to Chagres fever. Chagres fever is a malarial fever occurring on the coast of the Caribbean Sea and is due to malarial infection emanating from vegetable matter in the swamps along the coast. The close resemblance of this form of influenza to Chagres fever led the writer to look for a similar source of infection in Dublin. He found numerous places in the city where there were accumulations of decaying vegetable matter, ashpit refuse, and filth, whose abominable vapors were blown over the city. Most important is the fact that he found many houses built, or being built, upon sites filled in with ashpit refuse and other rubbish containing vegetable matter and filth. He thinks that the vapors arising from such building-ground and from the refuse depots and other collections of decaying vegetable matter and filth in the city are the cause of the high death-rate and of the malarial type of enteric influenza, which may as justly be called Dublin fever, as the fevers of Chagres, Malta, or Gibraltar derive their names from the places whose insanitary conditions produce them.

Colostomy by Strangulation.—M. Gangolphe (*Rev. de Chir.*, Feb., 1900) describes a method of iliac colostomy by ligature and strangulation which he has performed sixteen times with satisfaction to himself and his patients. The opening in the abdominal wall is made small to prevent prolapse and hernia. The gut is drawn out of the wound and stitched to the parietal peritoneum, in such a manner that three or four inches of it protrude. Through its meson, close to the level of the skin, two interlocking stout ligatures are passed and tied around the afferent and efferent limbs of the loop of bowel. They are tied as tight as possible, the object being to strangulate the gut. In this they succeed in some forty-eight hours, the patient meanwhile having suffered colicky pains of slight character. The gangrenous distended loop of bowel is then opened with a thermocautery, and the constricting ligatures, having fulfilled their mission are cut and slipped off. The appearance of the wound at this stage is said to be somewhat alarming, but the writer says that it may be safely left to the restorative power of nature. In time the sloughs come away and a double-barrelled anus is left, the upper afferent end, having usually the larger caliber, although not always so. There is no tendency to prolapse, and as the septum between the openings

is well marked the passage of fecal matter from the afferent into the efferent portion of the gut does not take place. Sixteen patients were operated on and all recovered. There was generally some fever but the severer symptoms of infection were wanting.

Vomiting of Pregnancy.—Cases of obstinate vomiting in the female are often due to pregnancy, being caused by reflex irritation from the uterus. If as many as two monthly periods have been missed, this, according to G. Davenport (*Obstetrics*, Feb., 1900) should always be thought of, for if not promptly and effectively treated it may result fatally. The treatment for a gastritis will be of no avail, for the vomiting is purely reflex, and there are no lesions either in the stomach or the liver. If ordinary means are of no avail for ten days or two weeks, the uterus should be emptied, and if this procedure has not been too long delayed it is always successful in stopping the vomiting.

Another Eye Accommodation.—Although the eye is such an important organ and so necessary to one's well-being, it is astonishing how often it is almost maliciously misused either by not wearing any glasses at all or by using those which do not correct the refractive errors. N. B. Jenkins (*N. Y. Med. Jour.*, March 3, 1900) draws attention to the power which the eye has of adapting itself to badly fitting glasses and calls this "another accommodation" of the eye. He cites many cases in which glasses were worn, some of them giving partial relief, but which were far from being able to correct the refractive errors. To select a pair of glasses that can be worn is a simple matter, but to properly correct complicated cases for long-continued reading will always be beyond the bungler and the quack.

Hemorrhage after Amygdalotomy.—One of the most difficult of primary hemorrhages to control, and one which is liable to occur in the experience of any general practitioner, is the hemorrhage which sometimes follows the simple abscission of an hypertrophied tonsil. G. B. Hope (*N. Y. Med. Jour.*, March 3, 1900) reports the case of a strong, healthy woman in whom it was evident that a small artery was cut during the operation which was performed under chloroform. The hemorrhage was severe and greatly aggravated by the uncontrollable excitement of the patient and the attacks of coughing necessitated by the presence of blood in her larynx. In these cases, ligation, compression or torsion is practically impossible. The familiar hemostatics, such as cold, cocaine, and antipyrine were ineffective and it was only after the persistent use of the galvanocautery that a fortunate arrest of the hemorrhage occurred. The patient had already lost large quantities of blood and it is probable that this exsanguinated condition had a beneficial effect. The treatment which is advised consists of the use of the galvanocautery, the hypodermic use of ergot, the maintenance of an erect position, and the avoidance of stimulants.

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SATURDAY, MARCH 10, 1900.

THE MILK SUPPLY OF LARGE CITIES.

AN abundance of pure water is recognized as the first essential provision in securing the healthfulness of a city, and undoubtedly second in importance is a plentiful supply of good milk. The recent interesting discussion of this subject before the New York County Medical Society (see p. 394) brings out clearly the fact that our American cities are being supplied with milk that is constantly improving in quality. Only a little persistence in demanding good milk is now needed to maintain the standard that during recent years has been attained. As in all economic questions the demand creates the supply.

No after-treatment of milk by centrifugal cleaning, nor even Pasteurization, ever succeeds in making carelessly collected milk as wholesome for general consumption, and especially for invalids and children, as the originally uncontaminated product. It is this branch of reform in the milk industry that needs encouragement. The farmer must be taught the precautions necessary to protect his milk as far as possible from any and all contamination and then must be paid enough for his additional labor and expense to warrant his expenditure. The increased sale of

such milk will soon abolish the necessity for any increase of price to the consumer. The improvements that have come in the milk supply have been mainly due to such advice obtained and put in practice through private enterprise.

The arraignment of the present state of affairs in New York City with regard to the absolute prohibition of the sale of skim-milk seems to be completely justified. The sale of skim-milk, like most other good things, is liable to great abuses. It needs most careful regulation. Prohibition, however, is too radical. Skim-milk is an extremely valuable article of food; moreover, it can be obtained for a very low price. To deprive the poor of all opportunity to purchase it because, forsooth, its sale is open to abuse is almost criminally absurd. A medical advisory board would surely put an end to the cruel waste of valuable nutritious material which the present prohibitive regulations involve. The poor of the city can be greatly benefited by being given an opportunity to purchase skimmed milk, when sold as such, at a price proportionate to its value. It has been found perfectly feasible to do this in other cities and it may surely be accomplished quite as well here in New York.

THE LICENSING OF MIDWIVES.

IN view of the fact that a bill is now before the New York State Legislature registering midwives in New York City, it is interesting to know what the medical men of Great Britain think regarding the desirability for such a measure for themselves.

A bill is now before the House of Commons for the regulation of the practice of midwives. In order to learn the exact opinion of the members of the profession upon the desirability of this proposed legislation, the *Lancet* sent out about 20,000 circulars to them, asking an answer to three questions: (1) Are you in favor of legislation for the regulation of the practice of midwives? (2) Are you in favor of the bill now before the House of Commons? (3) Are you indifferent in the matter? Answers have been received from about one-third (6299) of the parties addressed. Of these 1817 consider no legislation necessary; 1323 are opposed to the present bill, although desiring legislation along these lines; 1311 favor legislation on this subject and support the present bill and 596 frankly express themselves as indifferent to the whole matter. The balance were more or less indifferent. The *Lancet*

considers that the opinions thus obtained are fairly representative of the medical sentiment regarding the matter. On this basis it will be seen that only about one-fourth of the profession are in favor of the bill, and fully one-third are absolutely opposed to it.

Regarding the regulation of the practice of midwives in New York City there should be no two opinions. Midwives flourish here in large numbers; by proper regulation, under legal enactments, they can be made to meet an absolute demand that is difficult to satisfy in any other way. As long as a midwife has fitted herself by proper instruction and training to fulfil the functions of that office, all principles of individual liberty on the part of the patient, and every right to earn an honest living on the part of the midwife, justify the existence of the latter. Under a proper system of regulation and wise legislation midwives may become an important and desirable factor in any tenement-house community.

A SCHOOL OF HYGIENIC AND SANITARY SCIENCE.

AN interesting feature connected with medical education is to be found in a recent announcement by the Cornell Medical School of the establishment in New York City of a School of Hygiene and Sanitary Science. Referring to the circular of information just issued it appears that the aim of the department is to teach not undergraduates only, but is specially planned to meet the needs of health officers throughout the cities, towns and villages of the country.

Granting that the ordinary physicians understand in a general way such matters as pertain to the health of large collections of people, as a matter of fact the endless details which have arisen from the increase of population and the crowding in great centers have far outstripped the knowledge of the average health officer, and too often this knowledge is acquired by him only after the sacrifice of life and at great public expense. In the primitive community it was a simple enough matter to protect the water supply, to see that the drains emptied below the reservoir, and that the public school had room enough for the pupils who attended it; but with the changes which have taken place in the last decade vastly more complex questions have arisen. The sanitary officer must be able to tell pure from impure water, to trace the source of contamination when it occurs and be able to propose a scheme by which the water can be made safe.

In great cities the impurities in the air are a matter of very serious consideration, also the derivation of these impurities and how to avoid them. The importance of this matter is shown by the reports of the New York Board of Health in following the work of the Street Cleaning Department under the late Colonel Waring, when the death-rate fell about 20 per cent. simply by removing the dirt from the streets and so protecting the atmosphere from contamination. Tenements, hotels, clubs, prisons and all other buildings in which human beings are forced to congregate, are gradually coming under the intelligent supervision of the health officer. The matter of superintending the food supply of great centers of population is another duty which devolves upon the health officer, and it is of the first importance that he should be instructed in the methods of testing the various foodstuffs, such as vegetables, meats, and milk.

Some infectious diseases are exceedingly rare and many men who live in healthy communities have never seen them in their most contagious forms, and, hence, without a knowledge of them great dangers may be thrust upon an unsuspecting public. In a large city like New York, almost every known disease can be seen at one time or another and a thorough knowledge obtained of its clinical aspect and how to verify its diagnosis. It is a self-evident fact that a mistake, even on the conservative side, may become a very serious matter in alarming a whole community and it is exceedingly important that such errors should not be made. In New York, with its endless opportunities for practical research, familiarity with contagious diseases can be acquired in a comparatively short time.

Thousands of men throughout the country who are serving in the capacity of health officers will doubtless welcome this opportunity of obtaining, in a few weeks, systematic instruction in all the manifold duties that devolve upon the official guardians of the public health. The practical way of applying the latest and most approved methods of disinfection, the detection of adulteration in food, and the testing of house-plumbing must be seen and studied, by the actual or prospective health officer, to be serviceable to him. When we consider that there are in New York State alone, seventeen thousand so-called sanitarians, the great majority of whom have had no systematic laboratory, didactic or practical instruction to fit them for their vocation, the importance to the profession and to the public of

the opportunities now afforded by Cornell Medical School cannot be overestimated. Two courses will be given annually, the fall term beginning in October and continuing six weeks and the spring term beginning on the third Tuesday in May and continuing through a similar period.

ECHOES AND NEWS.

NEW YORK.

Rabies Spreading.—The New York State Health Board has instructed Dr. Thomas A. Kilip, State Sanitary Physician, to visit Buffalo and all towns in western New York and report as to the epidemic of rabies which prevails in that region. This epidemic appears to be steadily creeping eastward.

Bequests to Hospitals.—By the will of Cecelia Julia Loux, the Isabelle Heimath Hospital, German Hospital, St. Francis' Hospital, St. Joseph's Hospital and the German Society each received a bequest of \$3,000; Roosevelt Hospital and the New York Institution for the Blind each received \$2,000 as bequests.

The City's Outdoor Poor.—The physicians for the city's outdoor poor examined 94,480 adults during 1899; 4,317 were sent to the Almshouse and 517 to the Colored Home, 862 children were sent to the Nursery and Child's Hospital and 907 to the Infants' Hospital. The sum of \$67,403.71 was secured for abandoned families and for illegitimate children.

Contagious Diseases.—For the week ending March 3, 1900: Measles, 818 cases and 33 deaths; diphtheria, 262 cases and 54 deaths; laryngeal diphtheria (croup), 21 cases and 13 deaths; scarlet fever, 160 cases and 23 deaths; chicken pox, 17 cases; tuberculosis, 193 cases and 171 deaths; typhoid fever, 7 cases and 3 deaths; cerebrospinal meningitis, 7 deaths; totals, 1478 cases and 304 deaths.

Mastoiditis Prevalent.—The Manhattan Eye and Ear Hospital and the New York Eye and Ear Infirmary have had more cases of mastoiditis during the past few weeks than they have had in years before. The disease appears to prevail most in the lower part of the city and on the East Side. There were thirty-two cases at the New York Infirmary in one day. Practically all cases have required operation. In many cases grip does not appear to be a concomitant affection.

A New Hospital.—The Board of Managers of the French Benevolent Society has decided to erect a new hospital. This building and the site will cost \$400,000, half of which sum has already been subscribed. The capacity of the new building will be 150 beds and 25 private rooms. This hospital is nonsectarian and makes no distinction as to nationality. The only assistance which the Society has received outside of individual sub-

scriptions is the share allotted by the Saturday and Sunday Association. It receives no aid from the city.

The Babies' Hospital.—In the eleventh annual report of the Babies' Hospital, to October 1, 1899, the number of patients is stated to have been 394, as against 371 in 1898, and 10,165 days' treatment were furnished against 9646 for the previous year. The death-rate was lower than in 1898, over 45 per cent. of the 114 deaths being those of infants under three months of age. The summer branch of the Hospital, at Oceanic, N. J., had a prosperous season. The year's receipts were \$18,494.04. There was a balance of \$1322.45 on October 1, 1899.

The Gerry Society Bill.—The hot contest being waged before the Judiciary Committee of the Legislature, regarding the bill providing that the Society for the Prevention of Cruelty to Children shall no longer be exempt from State inspection, still progresses without abatement. The Governor has finally committed himself in favor of the bill, saying: "We provide for the inspection of banks and of insurance companies and surely it is as important to protect the interests of inmates of charitable institutions as it is to protect stockholders and depositors."

Garbage Disposal.—The bill before the Legislature abolishing the use of the garbage-reduction plant on Barren Island is meeting with vigorous opposition from members of the Street Cleaning Department. Street Cleaning Commissioner Nagle says that the proposed new plan would necessitate the erection in the city limits of not less than ten cremation furnaces of large capacity, of which four at least would be situated on the Island of Manhattan. It is estimated that the change from the present system of disposing of garbage would involve an outlay of over \$2,000,000.

State Medical Association.—A bill was introduced in the Assembly at Albany, on February 28th, to charter the New York State Medical Association for the purpose of cultivating and advancing the science of medicine, the promotion of public health, the establishment of a death-fund for the dependents of its members, and for assisting in the work of enforcing the general medical laws of the State. The Association is authorized to hold real estate to an amount not exceeding \$100,000. The governing body is to be known as a council, which will make laws for the proper government of the Association and of its branches and subordinate county associations.

Unusual Deaths.—Lawrence Akins of New Rochelle was well until March 1st, when he scratched his left thumb on a rusty nail. Soon afterward his arm began to swell and his physicians wished to amputate. He refused to have this done and died within three days from the time he received the scratch. He was 38 years old.—John Groh died on February 27th, while undergoing an operation at the Polyclinic Hos-

pital, in East Thirty-fourth street. Mr. Groh disobeyed his physician's direction to rest quietly home on the night of February 26th. Instead he went out and took stimulants freely. The operation was on the posterior nares. Cocaine was used at first, but later nitrous oxide was administered. The patient suddenly collapsed and could not be restored.

Filing of Vital Statistics.—Most of the regular practitioners and midwives of Rochester, N. Y., are plaintiffs in actions brought against the city to secure pay for registering vital statistics with the Board of Health. These bills have not been paid because it has been held by the city authorities that such payments should be made by others. A test case has already gone to the Appellate Division and has been decided in favor of the physicians. Many similar suits are pending. The constitutionality of the law governing the registration of these statistics at municipal expense is involved in these cases, and the law applies to every city in the State. The decision of the Appellate Division in the test case above noted was a unanimous affirmation of that of the lower court, and directed that the city pay the cost of the proceedings.

Obituary.—Dr. Clarence E. Beebe died on February 28th. He was fifty-one years old. He was graduated from Yale in 1871 and from the New York University Medical School in 1873. He was a member of the New York County Medical Association and of various other societies.—Dr. Christopher Prince died on March 4th, at his home in Irvington-on-Hudson. He was born in Brooklyn, in 1823. Dr. Prince studied medicine under Dr. Willard Parker and was graduated from the College of Physicians and Surgeons in his twenty-second year. He built up a very extensive practice in New York. In 1872 he was appointed police surgeon, which place he resigned to accept the surgeonship of the Fire Department. He was an active member of the Academy of Medicine, of the County Medical Society and of the Pathological Society, and was for some years chairman of the Obstetrical Section of the Academy.

PHILADELPHIA.

Health Report.—Deaths in the city for the week ending March 3rd were 596, an increase over the previous week of 151 and an increase of 30 as compared with the corresponding week of last year. Contagious diseases: Diphtheria, 106 cases, 30 deaths; scarlet fever, 70 cases, 3 deaths; typhoid fever, 66 cases, 9 deaths.

Magazine Changes Hands.—The *University Medical Magazine*, formerly published by a stock company, has recently come under the control of the Trustees of the University of Pennsylvania. Dr. C. H. Frazier has been chosen editor and the magazine will in the future be issued as the official organ of the medical department.

Pay Hospital for Contagious Diseases.—The

movement toward the establishing of this hospital is assuming definite shape, the site having been selected and the erection of two pavilions, one each for diphtheria and scarlet-fever patients, will be begun shortly. Patients in the hospital will be allowed to retain the services of their own physician.

Instruction in Nursing.—A ten weeks' course for training nurses has been instituted by the Philadelphia Nurse Supply and Medical Dispensary. The purpose is to train women of all classes in the elements of nursing and to instruct young women in the practical details. Prominent society women are interested in the project. The course consists of forty evening lectures, practical demonstrations by trained nurses from the various hospitals, and actual nursing among the sick poor.

Improved Urine Separator.—At the meeting of the County Medical Society, February 28th, Dr. A. J. Downes demonstrated an instrument for "siphonage of the partitioned bladder." The Harris urine separator, although giving good results in many instances, causes distress to the patient, allows a possible admixture of urines, and has a caliber larger than is needed. The instrument devised by Dr. Downes consists of two parts, a double catheter No. 13 American scale, and a partition rod. This rod has a particular shape for each sex and is longer than in the Harris instrument, the aim being to partition the whole bottom of the bladder. Separation of the urine is proven in every case.

Examination Fraud.—The report of the State Medical Board has at last been made public. The leakage of questions was traced to the State Printer's office, but efforts to discover in what manner the questions were secured have failed. Dr. D. B. Hoeh of Indiana County confessed that he supplied candidates with questions at the June examination of 1899, but stated his inability to reveal the source, as the questions came in anonymous letters. It is stated that the college records of all but two of the men who obtained the questions indicate that they could have passed the examination on their merits, and that those two have voluntarily expressed their willingness to stand a re-examination.

The report of the State Council, submitted by the Lieutenant-Governor, states that the report of the Medical Board is practically a correct one, but that the general rules for obtaining evidence were not followed in getting at the facts, and that the statements of Dr. Hoeh are not reliable.

Academy of Surgery.—At the meeting March 5th Dr. Le Conte exhibited a patient in whom he had resected the left wrist because of tubercular arthritis. The dorsal incision between the third and fourth metacarpal bones was used. This is considered the best incision as it allows the resection of the carpus as one bone.

Dr. Shoemaker reported a case of "Interstitial Hemorrhage into the Fallopian Tube simulating

Acute Appendicitis.—The patient was a woman of forty-three, married one year before. The symptoms were pain, vomiting, rigidity, and tenderness. There was no hemorrhage into the broad ligament or Douglas' cul-de-sac and no tenderness was found upon vaginal examination. Calomel was given and ice applied. Although the pain was relieved the condition of the patient was such that operation was advised and performed thirty-two hours after the attack began. The appendix was thickened, but was not acutely inflamed. A sessile cyst was found upon the right ovary. The tube was patent and there was no hemorrhage into the broad ligament, the rare condition of interstitial hemorrhage into the tube being present. No fetus or clot was found free in the abdomen, although ectopic gestation was suspected. The ovary and tube, also the appendix, were removed and the patient recovered.

CHICAGO.

St. Luke's Hospital.—The property of this hospital, situated on Fourteenth Street and Indiana Avenue, has been mortgaged to secure a loan of \$50,000. The Directors of this institution say that the hospital has been steadily running behind because of its liberality in treating patients free of charge. The debts amount to more than \$30,000.

German-American Hospital.—The officials of this hospital held their annual meeting March 1st. The reports showed that the hospital had been prosperous and that the floating debt had been wiped out. During the year 334 patients were cared for, and the income for the year amounted to \$12,820.17. The expenses were \$9,419.14, leaving a surplus of \$3,401.03.

Statistics of Juvenile Offenders.—The collection of statistics with reference to the physical and mental condition of juvenile offenders in America, and their comparison with similar statistics compiled for the juvenile population at large, would be a valuable contribution to the sociologic information of this country. Miss Julia Lathrop, a member of the Illinois State Board of Charities, in a recent address stated that no such statistics had ever been collected in America, to her knowledge, and suggested that a useful study might be made of the condition of the boys in the Chicago Bridewell as to the points brought out in the English Industrial School investigations.

Conference of Sanitarians to Prevent the Spread of the Bubonic Plague.—Health Commissioner Reynolds has written to both Drs. Walter Wyman and George M. Sternberg suggesting the advisability of calling a national conference of sanitary officers, in April next, to consider the whole question. It is believed that a convention to discuss this one subject alone would attract universal attention and the proceedings would find the widest publicity through the daily press. The knowledge that such a convention was to be held would allay fear and the deliberations would create a sense of public security. The feeling of an

impending danger that is unseen and not understood is what creates fear and panic.

Experiments in Scarlet Fever.—At a meeting of the Chicago Society of Internal Medicine, held February 27th, Dr. William K. Jaques read a paper on this subject, in which he began with the epidemics in Chicago among the poorer classes in 1897 and 1898, and which gradually spread throughout the city, lasting 1898, 1899 and 1900. He dwelt at length on the discovery of the germ of scarlatina by Dr. Wynkoop, and the announcement of the discovery of the diplococcus scarlatinae by Dr. William J. Class. He has found the germ discovered by Dr. Class present in great numbers in the throat, in the blood, and even in the scales of scarlet fever patients. Indeed, he has found the Class diplococcus just as frequently in cases of scarlet fever as he has the Klebs-Loeffler bacillus in diphtheria.

Emergency Hospital for the Business District of Chicago.—Dr. Francis W. McNamara, in a recent article pointed out the urgent necessity for an emergency hospital located in the business district of this city for the care of emergency cases only. Chicago should erect and equip a building in its central portion, easy of access, for hospital purposes, and establish in connection an ambulance service with experienced physicians in charge who are ready at all hours to administer medical or surgical aid to the injured or sick. The remedy for this condition requires only the expenditure of a small amount of money to build a small hospital of thirty or forty beds. As the emergency cases are usually of short duration, either recovering promptly or resulting fatally in a brief time, there is no need for a larger institution.

Vital Statistics.—There were 536 deaths reported to the Chicago Health Department during the week ended February 24th. Consumption and cancer mortality were excessive, the 32 deaths from the former disease being the greatest number reported for any week in more than a year. Of the 536 deaths during the week, 105 were of children under one year of age, and 112 among those over sixty years. Deaths from pneumonia and bronchitis show a diminished number as compared with the preceding week and a marked reduction as compared with the corresponding period of 1899. Pupils to the number of 4657 were examined by the medical inspectors of schools, of which 293 were excluded because they had the evidence of contagion about them. There were 225 cases of contagious diseases reported by physicians to the Department, while 224 premises were disinfected by the Department, and 24 contagious-disease funerals were supervised. In the laboratory 132 bacteriologic examinations were made during the week; 590 tubes of vaccine lymph and 81 bottles of antitoxin were given out; 519 samples of milk and cream analyzed, of which 120 were brought to the laboratory by private individuals, and 399 were collected by the milk inspectors.

The Physicians' Club of Chicago.—At a meeting, held February 26th, the subject of "Success in Medicine" was discussed by Drs. Frank S. Johnson, E. J. Gardiner, and William E. Quine. The latter spoke of economy of time in the practice of medicine, and said that one of the best ways to economize time is to do the work in hand instantly. He knows of no better incentive to economy of time than that which is furnished by having fixed obligations, as a college engagement, a hospital engagement, or the like, making it necessary for the physician to be at a particular place at a particular time. The ability to economize time is largely innate. He knows physicians who will fuss and stew around and be as busy in making six or ten visits a day as others would be in making from twenty-five to thirty visits. Dr. James B. Herrick discussed the subject of proper and improper advertising. Dr. Alexander Hugh Ferguson spoke of the question of fees and commissions. No physician or surgeon should charge a fee which is a hardship to a patient. A fee of ten dollars would be a hardship to a poor man, whereas a fee of ten thousand dollars would scarcely be felt by a millionaire. He characterized the practice among some physicians and surgeons of giving commissions as damnable and disreputable. In the general discussion, Drs. John E. Owens, Harold N. Moyer, Joseph Zeisler, and James E. Stubbs concurred in the statements of Dr. Ferguson.

GENERAL.

Medical Students Quarantined.—Nine students of the Detroit College of Medicine and a helper are detained in the smallpox hospital. They all had been engaged in the dissecting-room upon the body of a man who died of what was supposed to be blood-poisoning, but which finally proved to be smallpox.

Berlin Physicians Obdurate.—The proposal to admit women as members of the Berlin Medical Society has been again brought to a vote. Those who spoke in favor of their admission cited the customs of America, Switzerland and other countries, for a generation past, but to no avail, for the men by an overwhelming majority voted "no women as members."

Diphtheria Epidemic in Ithaca.—A diphtheria epidemic has been prevalent in Ithaca, New York. It is declared that the first few cases were treated lightly by the physicians and were not reported to the Board of Health. As a result no steps were taken to arrest the epidemic until very recently. The city hospital is crowded with patients, and no more can be admitted.

Bibliography of Italian Literature.—The first number of a new bibliographical bulletin of Italian medical literature is just received. *Bollettino Bibliografico delle Pubblicazioni Mediche Italiano* is its title. It is very ingeniously arranged. Articles are classified according to sub-

ject and printed in double column in the form of small cards. Such being printed on one side of the page only may be cut out, mounted on cards and thus classified. The other side is used for advertisements. In this first contribution 191 titles are thus given.

The Hahnemann Monument.—A bill granting permission for the erection of a monument in honor of Samuel Hahnemann has passed both Houses of Congress and been signed by the President. The location has not yet been selected, but a contract has been signed for the erection of the structure at a cost of \$48,000, exclusive of the foundation. Subscriptions to the amount of \$75,000 will be required to complete the monument with its fitting accessories and surroundings. Money is still needed. It seems to be difficult to raise money for monuments to physicians; the Rush monument fund also is still in need of additional subscriptions.

Vaccination and School Attendance.—The Supreme Court of Indiana has recently decided that an unvaccinated child may lawfully be excluded from a public school in a locality where there was danger of a smallpox epidemic, although there is no Indiana statute making vaccination compulsory, or imposing it as a condition for the privilege of attending the public schools. It was considered that the power of the local Board of Health to establish a regulation to this effect is derived from the State Board of Health, which body is authorized by an act of the Legislature to adopt rules and by-laws to prevent outbreaks and the spread of contagious and infectious diseases.

The Queen and the Wounded.—The Queen's personal interest in the men fighting the nation's battles is being constantly shown by her visits to Netley Hospital and other institutions where lie the officers and men who have been wounded in South Africa. The best illustration of her sympathy has been shown by summoning to Osborne Bugler Dunn, aged fifteen, who was the first to cross the Tugela River in a recent advance. While running with the soldiers, holding his bugle in his right hand and sounding the advance, a bullet struck his arm and the bugle fell. The boy immediately picked it up with his left hand and repeated the call. The boy's father, a sergeant, returned to the front this week, having recovered from a wound.

Sickness and Marriage Engagements.—It was decided by the Supreme Court of Appeals of Virginia, on December 7, 1899, that "a contract to marry is coupled with the implied condition that both of the parties shall remain in the enjoyment of life and health, and, if the condition of the parties has so changed that the marriage state would endanger the life or health of either, a breach of the contract is excusable. One month before the appointed date for the marriage the defendant found himself suffering from cystitis and was warned by his physician that the malady would be aggravated by marriage. He, there-

fore, broke the engagement, and suit was brought with the result above stated. Shortly after the Court of Appeals decided in his favor, the defendant married a woman other than the plaintiff.

For Psychical Research.—The Society for Psychical Research will shortly appeal to the public for \$50,000 with which to investigate the phenomena of hallucinations, coincidences, apparitions, automatism, etc. Dr. James H. Hyslop, Professor of Logic at Columbia University, who is deeply interested in such work, considers that thorough and scientific investigation of these phenomena might result in a modification of the whole theory of insanity as it prevails at this time. If such investigation were made, a cure for certain forms of insanity might be discovered. "It would not apply," states Dr. Hyslop, to "acute mania, or melancholia, or to epileptic insanity, but it might apply to some forms of mental insanity which are based upon hallucinations. Many persons are put in asylums who in reality are sane and merely have psychical peculiarities."

A Reconstruction Feat.—An inquest was recently held in London upon a most singular form of "remains." An extensive fire in which several persons had narrow escapes, had occurred a few days before and among the missing was an old lady of sixty, named Forest. It was at first thought that she had taken shelter with friends, but nothing could be discovered of her whereabouts and a careful search through the ruins of the building resulted in the finding of the charred remains of a single tarsal bone. Enough of its form was preserved to admit of its identification as human and the jury after viewing the fragment and hearing the medical testimony as to its character, expressed themselves as satisfied that it was the sole remains of the unfortunate woman and accordingly returned a verdict of accidental death. This is almost equal to some of the "reconstruction" feats of paleontology.

The Plague.—The most threatening advance that the plague has made as far as our country is concerned is its appearance in the Island of Cozumel, off the coast of Yucatan. The presence of the plague at Santos in December last marked the first invasion of the Western hemisphere by that dread scourge. The invasion of Cozumel brings the disease nearer to our own borders, and is an incentive to still greater precautions on the part of our Marine Hospital Service. The decisive treatment that the plague has received in the Sandwich Islands, and the success which has attended it, is an indication of the methods that should be adopted wherever the plague makes its appearance. In view of the danger of the plague, a bill has been introduced in the New York Legislature extending the powers, in quarantine matters, of the health officer at the port of New York.

March 6th the San Francisco board of health, under the apprehension that a case of bubonic plague had been discovered there, called upon the police to put a cordon about the Chinese

quarter. This was done, although definite proof of the genuineness of the case had not been presented. Cultures from the pus are now being made. The steamer "Nanyo Maru," from Japan via Honolulu, is held in quarantine seventy miles from Victoria, B. C., under suspicion of having the plague on board. The diagnosis rests between that and beri-beri.

Medical War News.—The triumph of the Army Medical Corps is complete. It has won, first, the admiration and praise of the intelligent public, then of Parliament, and when the situation had dawned upon the intelligence of the generals and they began to pay compliments it was thought the climax was reached. But more remained. At the inspection of the Langman Field-hospital, of which Dr. Conan Doyle is physician-in-chief, that venerable reactionary, the Duke of Cambridge, late Commander-in-Chief, actually took occasion to speak of the good work done by the Army Medical Corps as one of the bright things of the present war. When it is remembered that His Royal Highness, in the long and weary years that he was Commander-in-Chief, before, to everybody's relief, he was deftly and politely juggled out of the position, was regarded as one of the bitterest opponents of any reform of the medical service or improvement of the position of the medical officers, the magnitude of the compliment can be appreciated. It was even reported that while at the head of the army he had upon several occasions expressed himself with perfect frankness upon the absurdity of being expected to recognize medical officers as "gentlemen," in the army sense of the term at least.

Sir Wm. MacCormack sends the following interesting anecdote to the *Lancet*: Corporal Thomas (of the Worcester Regiment), Mounted Infantry, was wounded at Arundel on November 23, 1899, whilst with a party reconnoitring the hills at Arundel. He was leading his pony up a hill when a Boer, about 400 yards distant, fired at him and hit him four times. All the bullets came from the same rifle; he saw the Boer standing up to fire at him. The first bullet struck the fifth metacarpo-phalangeal joint of the right hand on the extensor surface, smashing the ends of the bones composing the joint, passing along the palmar surface of the metacarpal bones obliquely to its exit between the first and second metacarpal bone and making an irregular oval-shaped wound the largest diameter of which was three inches. The exit wound was on the extensor surface of the hand. The irregular, ragged appearance of the wound of exit was caused by smashed bones. The second bullet had its entrance in a small, round, punched-out wound, typical of the Mauser bullet, at the base of the palmar surface of the left thumb and passed obliquely upwards and outwards. Its exit was at the extensor surface of the lower extremity of the radius, the exit being irregular. The third bullet entered at the inferior angle of the left scapula, passing directly from

behind forwards. (He had turned around after being struck a second time.) The exit was at a corresponding level in front through the sixth interspace, about two inches from the median line. The track of the bullet must have been in immediate proximity to the heart, the pericardium, and the large blood-vessels. Both the entrance wound and the exit wound were small, round, regularly punched out, and typical of the Mauser bullet when striking soft structures. The fourth bullet entered behind on the left side in the tenth intercostal space, four inches from the middle line, passing through the lower part of the chest and the upper part of the abdomen. It emerged in the linea semilunaris about the level of the twelfth rib. The entrance wound and the exit wound were typical of wounds from the Mauser bullet. There were no symptoms of internal injury to either the chest or the abdomen. The patient had a slight rise of temperature for three days. I saw him sitting up in the train a few days afterwards regretting his transfer down country, his chief trouble being stiffness of his right little finger joint. The Boer who hit Corporal Thomas carried him down the hill to the relief station in his own blanket and said that he would give anything not to have shot him because he thought he was going to die.

CORRESPONDENCE.

KEELEY'S LAST MOMENTS.

To the Editor of the MEDICAL NEWS:

DEAR SIR:—I was called to attend the notorious Dr. Leslie E. Keeley just before his death. As I walked into the house he gave a few gasps and fell back dead. He was surrounded by "Christian Scientists," who had been in constant attendance for several days, treating him for an attack of the grip. I was informed that he had been under the same scientific (?) treatment for several years, being a sufferer from chronic heart disease. To all sensible people this is sufficient proof that the vaunted "Keeley Cure," from a medical aspect, is a fake pure and simple. Of course, the great bulk of the medical profession came to that conclusion years ago, but I am sure the readers of the MEDICAL NEWS will be interested to learn that one of the greatest medical fakers of our times was himself the victim of a still greater fake than his own.

West Hughes, M.D.

Los Angeles, California, March 1, 1900.

THE INTRA-UTERINE TRACTION FORCEPS.

To the Editor of the MEDICAL NEWS:

DEAR SIR:—My attention has been called by Dr. Augustus C. Bernays to the striking resemblance which my intra-uterine traction forceps bears to an instrument which he devised fifteen years ago.

It gives me great pleasure to acknowledge Dr.

Bernays' claims to priority in devising this instrument so far as applied to intra-uterine traction. It is possible that I had seen an illustration of his instrument and forgotten it while shaping mine.

William R. Pryor.

121 East 36th Street, New York.

February 13, 1900.

OUR LONDON LETTER.

[From Our Special Correspondent.]

LONDON, February 24, 1900.
ANOTHER MEDICAL MEMBER OF PARLIAMENT—
THE PRINCE OF WALES AND THE HOSPITALS—
MR. BALFOUR AND BACTERIOLOGY—STEADY
GROWTH OF CREMATION—THE HIGH DEATH-
RATE OF DUBLIN—A NEW CARD GAME.

By the election of Sir Michael Foster to represent the University of London in Parliament the medical profession has secured a new representative in the legislative arena, of whom it may well be proud. Universal satisfaction is expressed with the result of the contest, which, after three days' polling on account of the scattered state of the constituency, gave the celebrated physiologist a handsome majority of over four hundred votes in a total of some two thousand five hundred. An admirable feature of the contest was its strikingly non-partisan character, as shown by the fact that the successful candidate, although a Liberal-Unionist, was nominated by the Conservatives, and, entering the field latest of all, defeated both the "regular" nominees in a hitherto strongly Liberal or Liberal-Unionist constituency. Indeed, Sir Michael frankly declined to label himself politically and his election was purely a case of the fulfilment of the pious objurgation, "and may the best man win." By a curious coincidence the last two previous holders of the seat have both resigned it on account of their elevation to the peerage, Mr. Lowe to be Viscount Sherbrook and Sir John Lubbock to be Lord Avebury, and we trust the tradition will not be broken in the case of the present incumbent. The candidate receiving the next highest number of votes, Mr. W. J. Collins, was also a member of the profession and would in many respects have made an admirable representative, but on account of his pronounced antivaccination views, medical preference was almost universally against him. Although for many years past devoted exclusively to physiology, Professor Foster was in his earlier days in active practice as a surgeon at Huntingdon.

The position of H. R. H. the Prince of Wales is rapidly becoming that of Inspector-in-General for all sorts of public organizations and is no sinecure. One day it is a new regiment, the next a hospital staff, the next a philanthropic association. Two of his functions this week have been of especial interest. One of these was the review of the entire staff of the new Yeomanry Hospital staff at Devonshire House. The medical officers headed by the Senior Surgeon, Mr. Alfred Fripp,

and Mr. Washbourne, were presented to his Highness, then followed the forty nurses, and, finally, the seventy-nine men of the hospital corps were marched into the ball-room, drawn up in line and addressed in the usual six-line official speech. The medical staff sailed the following day and the nurses and orderlies follow during the week. It seems probable that the hospital will be located at De Aar instead of near Cape Town, as at first planned.

Twenty-four hours later the Prince presided at the annual meeting of the General Council of his own Hospital Fund, which has for its purpose the supplementing of the inadequate incomes of the London hospitals. The report was a most encouraging one, as the receipts for 1899 mounted up to nearly \$250,000, an increase of \$45,000 over 1898. This is regarded in view of the enormous demands of the various war-funds upon the public charitable purse the past five months, as a most favorable showing. Nearly 300 disused beds have been reopened and maintained through the help of the Fund during the past three years. The claim of the Fund to be regarded as one of the war-relief group, in view of the accommodations likely to be required of the hospitals it assists for wounded and invalided soldiers, was especially urged. The Prince alluded in most complimentary terms to the absence of one of the members of the council, Sir Wm. MacCormac, whose performance of the arduous duties of active service in the field, at his time of life "reflects great credit upon him and gives the utmost satisfaction to all who know him."

At a dinner held in aid of the fund for the new Bacteriological and Physical Laboratories of Kings College, Hon. A. J. Balfour presided and made the speech of the evening. After alluding in general terms to the importance of science and scientific training as the basis of modern progress, he proceeded to express his appreciation of the prominent part in promoting not merely private but the public welfare beginning to be played by bacteriology and the results of its researches. To the English, of all people in the world, with their large tropical and subtropical empire, its value and future usefulness could hardly be over-estimated. He alluded to the fact that this had been officially recognized by the Government by the assistance extended by the Colonial Secretary, Mr. Chamberlain, to the London School of Tropical Medicine and urged his hearers to respond to the appeal of the college in a manner befitting the representatives of the wealthiest city in the world, but one which hitherto had scarcely been fully alive to her obligations to scientific research.

Public attention has twice been called to the work of the English Cremation Society within the past few months, once by the incineration at their Woking establishment of Grant Allen's remains and again a few days ago by those of the Duke of Westminster. A singular case of devotion to principle on the part of a believer in cremation is that of a British officer, killed in South Africa, whose body in accordance with his special direc-

tions was brought home all the way to Woking to be cremated. It would certainly have saved much trouble in embalming and inconvenience in transport if the cremation could have been carried out at the other end of the line. The number of cremations reported the past month is almost as large as that for the entire year of 1892.

The mortality of the Irish capital, never of the lowest, has been reaching such astounding figures of late—no less than from 35 to 50 per 100 per annum in some weeks—that it has become a public scandal, and a few weeks ago a joint committee was appointed by the Royal Colleges of Dublin, the corporation and sanitary authorities. This has just published a preliminary report, by the Sanitary Inspector, in which the safe, if not specially illuminating, conclusion is reached that the excessive death-rate is due chiefly to poverty, underfeeding, overcrowding and intemperance. If these factors will not produce a high mortality, what will? Unfortunately, they are not confined to Dublin and the commission has still the task of determining whether these elemental eliminatory agencies exist in higher degree there than elsewhere in the world, and, if so, why? As regards overcrowding, they do seem to have established some claim to excessiveness, at least to pictur-esque ness and ingenuity. In one room they found each of the four corners sublet to a separate individual or family, while the "landlord," or landlady, as it happened to be, occupied the center of the floor! No "absentee landlordism" about this arrangement or danger of rack-renting by a grasping and soulless middleman or "agent." But it really would seem as if the celebrated "pig in the parlor" principle, so charming in rural surroundings had certain draw-backs when transplanted to urban environments, and may even rise to the dignity of a special factor in the death-rate.

A most curious case of will-making under difficulties has just been before the English courts. An old lady had a stroke of paralysis with aphasia and was advised by her medical attendant, Dr. Edmunds, to make her will. The difficulty at once was how to ascertain her wishes in the matter, as there was also motor agraphia. Dr. Edmunds devised the plan of writing down the names of all her relatives upon one series of cards and the various items of her extensive property on a second series. Then the game began. Her solicitor played the title of a piece of property and the old lady after looking through her "hand" of relatives, played a name and the trick was turned and laid aside. From these "instructions" the will was drawn up and read to the testator, who nodded her assent to each item and signed the whole by making her mark. The will, of course, was disputed, but the judge declared the method pursued had been most skilful and perfectly fair, and admitted the will to probate. Dr. Edmunds is certainly to be congratulated upon the ingenuity and effectiveness of his brilliant device.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

RESECTION OF GANGRENOUS INTESTINE—MURPHY'S BUTTON AND SUTURE COMPARED—GUNSHOT WOUND OF THE ABDOMEN—EXOPHTHALMOS PRODUCED BY THYROID EXTRACT—GLAUCOMA CAUSED BY HOMATROPIN—EPHYSEAL DISLOCATIONS.

AT the Clinical Society of London, January 26th, J. HUTCHINSON, JR., read a paper on resection of gangrenous intestine in cases of hernia, based on the records of 42 operations. There is a general impression that the use of Murphy's button has rendered resection of the intestine not only quicker but safer. To test the truth of this assumption Hutchinson made a collection of hospital cases. There were 15 examples of primary resection of intestine for gangrene performed with the Murphy button, and 16 instances in which suture alone was employed. Only one patient upon whom the button was used recovered (7 per cent.), while six patients whose intestine was sutured recovered (37 per cent.). An artificial anus without resection was performed upon 11 patients, all of whom died. This is a very striking comparison of the result of anastomosis by the button and by suture, and, moreover, the patients who died after suture lived on an average twice as long as those who were operated upon by the button. The post-mortem examination showed, too, better union of the divided ends after suture than after the use of the button. The latter is apt to cause acute congestion by its bulk, and its weight is also a disadvantage. That there is some risk of a resulting stricture after recovery is shown by post-mortem examination of patients who have lived some weeks after gastrojejunostomy has been performed. The greater time required for suture has probably been exaggerated. According to his experience the after-shock is not great. Primary resection of gangrenous, perforated or irretrievably damaged intestine in a hernia must always be attended by a high mortality, but it offers the best chance for recovery of any plan of treatment. Especial care should be taken with the mesenteric portion of the suture, and enough gut should be resected to bring the suture into healthy tissue. Maunsell's method is one of the best to follow.

A. BARKER said that he had recently resected gangrenous intestine on three occasions, using the button once and suturing twice. The patient upon whom the button was used died, and the other two recovered. He once lost a patient from paralysis of the bowel, caused by the heavy button dragging the loop of bowel into the pelvis. He, too, emphasized the necessity of resecting a sufficient amount of gut. Once he took away 35 inches, and the patient made a good recovery.

A. P. GOULD mentioned the case of a young man who was accidentally shot in the abdomen with a small revolver. There was little shock and the pain was not excessive. At operation there

were found and sutured four wounds of the jejunum and two of the mesentery. The peritoneal cavity contained some blood, but no gas nor intestinal contents as far as could be seen. The patient recovered.

A. BARKER said that the amount of shock varied greatly in such cases. He once knew a man after a gunshot wound of the abdomen to walk down stairs and profess himself as feeling quite well. The velocity of the bullet must be considered. If the speed is great, the intestinal wounds will probably be small.

N. PITTS said that "cow-doctors" puncture distended intestine with a trocar, and peritonitis does not follow. From this one might infer that a small bullet of high velocity may pierce the intestine and yet no serious result follow.

At the Ophthalmological Society, January 25th, W. EDMUNDS gave the results of experiments which tend to show that exophthalmos may be produced by overfeeding with thyroid extract. This is especially interesting as showing that the principal symptom of Graves' disease may be secondary to the goiter. All of his experiments were upon the lower animals, but Beclere had stated that it followed the administration of too great doses of thyroid extract for myxedema in a woman.

J. B. LAWFORD reported a case in which thyroid extract had been given with great benefit to a woman who had suffered with myxedema for five years. Four and a half years later she suffered a relapse, and was put upon thyroid extract. Exophthalmos soon developed.

G. MACKAY knew of an instance in which removal of enlarged cervical glands, and division of the cervical sympathetic, was followed by exophthalmos.

C. H. B. SHEARS read notes of a case of acute glaucoma following a single application of homatropin. A woman, aged fifty-two years, asked for reading glasses. With her hypermetropia corrected her distant vision was nearly two-thirds of normal. One or two drops of homatropin, four grains to the ounce, was put into the right eye. When she returned to the hospital one week later she had all the signs of glaucoma in that eye and could only just count fingers. Pain and vomiting and great loss of sight came on the same evening that the homatropin was used. Eserin and leeches were tried for two hours without benefit. Iridectomy was then performed and the tension and sight were quite restored in ten days and remained so up to the time of report. Shears expressed the opinion that no mydriatic should be put into the eyes of persons over thirty years of age, without careful consideration.

At the Harveian Society, February 1st, D'ARCY POWER showed a little girl whose arm had been injured in some unknown manner and kept in splints for six weeks. Four months later she came to him for a deformity at the elbow. There was a state of cubitus varus, that is to say the long axis of the arm was bent in at the elbow. All the motions of the joint were well performed.

The radiographs showed that there had been a subperiosteal separation of the lower epiphysis of the humerus, and a shifting of the whole epiphysis toward the inner side of the shaft. The external condyle of the humerus had lost its cartilaginous covering, and the internal condyle had been thickened by periosteal growth. This is an illustration of a whole class of injuries which is just beginning to be understood since they can be studied by means of the X-rays. He had advised against operation since the function of the arm was so good, although the radiograph showed that operation would not be difficult to carry out.

SOCIETY PROCEEDINGS.

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held February 1, 1900.

The President, William H. Thomson, M.D., in the Chair.

On motion of Dr. Squibb a committee was appointed to attend the meetings of the Committee on Revision of the Pharmacopoeia at Washington. The members of the committee will be announced later.

Dr. Louis F. Bishop, Secretary of the Academy, read a communication asking that the Academy of Medicine formally sign a petition to Congress which is being circulated among the educational, charitable and religious institutions of the country in order to secure a remission of the present exorbitant war-tax on bequests. According to the present law ten per cent. of all moneys devised to such institutions goes to the General Government. As this entails a large loss of money to institutions which are intended only for the public good, and as the Government is now in no pressing need of funds, it is hoped that an amendatory clause will be enacted to do away with this tax. On motion the President of the Academy was empowered to formally sign the petition drawn up for this purpose.

A communication was read from Dr. W. W. Keen, President of the American Medical Association, asking that the New York Academy of Medicine take official action as to Senator Gallinger's bill for the limitation of vivisection in the District of Columbia, which has been introduced into the present Congress. The President, Dr. Thomson, suggested that not only should the formal expression of the opinion of the Academy of Medicine with regard to this bill be sent to Washington, but that at the proper time a committee, selected for the purpose, should be sent to appear before the Legislative Committee and do all in their power to show that the enactment of this bill, which is being presented so persistently at each succeeding session of Congress, is calculated to do great harm to the development of scientific medicine in America. On motion the formal disapproval by the Academy of Senator

Gallinger's bill was directed to be expressed in writing.

Diseases of the Heart.—The discussion which had been opened up by Dr. Musser's paper on myocarditis and Dr. Koplik's paper on myocarditis in children at the last meeting, was resumed.

Dr. Morris Manges said that to know the causes of the failure of compensation is very often to be in a position to treat heart failure at the serious moments when digitalis and other heart tonics fail. Romberg of Leipzig carefully studied a large series of cases and found that the average duration of compensation was seven years, and this in spite of the fact that in one-third of the cases proper compensation was never established. In one patient compensation endured for fifty-three years. We are in the midst of a transition period. Leyden of Berlin by his recent work on the nervous mechanism of the heart and the autonomy of the heart muscle has brought out a number of facts important to practitioners and very different from the old ideas that used to be taught in physiology. The important point in the establishment and continuance of heart compensation is the myocardium. It used to be thought that undue distention of the heart gave rise to fatty degeneration. Fatty degeneration of the heart muscle is now considered to be of minor importance. Residual blood in the ventricle and auricle is not so important as it was formerly thought to be. Where the heart muscle is reasonably healthy undue distension will return. Where nutrition is unequal to the importunity, however, the heart muscle will surely fail. Hypertrophy of the muscular fibers does something to overcome pathological conditions, but there must be a return to normal nutrition or compensation will not be established. For this the tone of the heart muscle is important.

Heart Dilatation and Its Results.—Dr. Theodore Schott of Nauheim showed by a series of skiagraphs that the heart is distinctly dilated after severe exercise, such as bicycling, running, and the like. This dilatation of the heart, if associated with malnutrition of the muscle, may become permanent. Dr. Krehl showed that all changes in the blood vessels of the heart began in an endo- or pericarditis which caused muscle necrosis and fatty degeneration. This occurs at various points throughout the organ. Dehio showed that fibrosis was not an uncommon process in the heart. This consists of a development of fibrous tissue in the midst of the muscle fibers and is really a conservative process on nature's part. When the muscle fibers have lost some of their elasticity because of the occurrence of degeneration the elasticity of the connective tissue supplies its place to a certain extent. The foci of degeneration occur by preference in the left auricle, the left ventricle, the right ventricle and in the right auricle respectively.

Importance of Myocarditis.—Where endocarditis develops in a heart the prognosis depends not so much on the endocarditis as on the complicating myocarditis. The hypertrophy which oc-

curs as a consequence of both these inflammations is followed by subsequent changes in the myocardium mainly connected with the blood vessels, thus altering the nutrition of the organ. Myocarditic changes may be conservative for a time, preventing overaction of the heart. When arteriosclerosis sets in, however, degeneration is apt to occur although with proper care it may be controlled for a long time. It is the custom to talk so much of compensation by itself and without reference to its causes that it is apt to be considered as a definite entity. It is not, however, but is only a condition of equilibrium induced by favorable circumstances in a heart weakened by some affection. The easiest way to understand this is to study the factors which may undo the equilibrium. Such factors are generally unfavorable constitutional conditions, such as anemia with its consequent effect on the nutrition of the heart muscle. Obesity has a like effect. Decomposition often follows reduction cures. To undertake the reduction of very much weight in a person whose heart is already enfeebled is to run the risk of seriously injuring, perhaps permanently, the compensation. From Carlsbad the physicians are now accustomed to send patients who have taken the reduction cure to Nauheim for after-treatment. It is no wonder that this is so, for rapid loss of flesh always means loss of tone in all muscles, especially the heart muscle. Organic disease, such as nephritis, or the constitutional diseases like diabetes or gout impair the nutrition of the heart muscle and so lead to decompensation. The specific infections, as influenza, have a toxic effect upon the heart. Rheumatism is especially liable to affect the heart in a number of ways. It not only damages the valves, but may directly affect the myocardia. Many of the toxins of the infectious fevers affect the vasomotor system and so disturb the local nutrition. Coronary arteriosclerosis may set in and then the patient must be warned to avoid any overexertion or strain of the heart muscles.

Muscular Overexertion.—This is an important factor in causing the development of decompensation. Athletes frequently strain the muscular fibers of their hearts. Bicycling in our day has become a serious disturber of heart compensation. Schroetter of Vienna insists that exercise must be taken with the head as well as with the muscles. That is it must be above all judicious. Parturition is apt to act as a strain on the heart muscle as does overexertion in athletics. Pericardial adhesions hamper the heart muscle very much. These lead to premature degeneration. Chronic lung troubles are another important source of decompensation. Krehl has shown that the degeneration of the heart muscle begins very often in the right auricle. Nervous conditions of the heart not necessarily connected with any organic lesions may also lead to premature degeneration. Extreme mental emotion, anxiety, fright, worry, all may have this effect. A broken heart is an actuality. The influence of extreme grief is sufficient to cause degeneration which

prevents heart action. Osler considers that acute dilatation from such causes may be followed by death in a few days or may lead to dropsy and chronic cardiac weakness.

Abuse of Drugs.—Unsuitable medication is a frequent source of cardiac decomposition. Cardiac tonics especially are open to abuse. To consider heart murmurs as a signal for the use of digitalis or strophanthus or some allied drug is to precipitate cardiac failure. The Nauheim treatment and Zander apparatus are often abused in a way that leads to serious disturbance of a compensation which might otherwise have kept the patient in reasonably good condition for years. Such cases have even occurred at Nauheim itself, and patients have been worse on their return from a voyage that they hoped would be a source of the greatest good. The coal-tar products have also been abused in the same way and with the same serious consequences. Thyroid preparations have been liable to the same abuse. Cardiac treatment should not be begun merely because murmurs are heard, no matter what the character of the murmurs may be. Only when some signs of heart failure are present should active heart treatment be instituted. It must be remembered that constitutional treatment is at least as important as direct treatment of the heart itself.

Aortic Valvulitis.—Dr. Frank W. Jackson said that the prominent causes of chronic aortic valvulitis, which are the only cases he cared to consider, are rheumatism, syphilis, alcohol and gout. In our time there is no doubt that we have good reason to think that a very important cause of aortic valvular disease is muscular strain. Athletes and those who overexert themselves are especially liable to this disorder. Of the two forms of aortic trouble, pure aortic stenosis is rare although it is the usual form that aortic trouble takes in the aged. It may lead to disturbances of the cerebral circulation and cause fainting or give rise to emboli. It must be remembered that a systolic murmur at the base of the heart does not necessarily imply an aortic stenosis. It may mean only an aortitis or only a thickening of the aortic valve and may occur under certain conditions in health. Aortic insufficiency is as common as aortic stenosis is rare. A combination of the two is not as common as is sometimes considered. A double murmur may exist at the aortic cartilage and yet the only heart lesion be a simple aortic regurgitation. Osler thinks that 30 to 50 per cent. of all valvulitis terminates in aortic insufficiency. Overexertion is a very common cause and the athlete's heart is typically that of aortic insufficiency. The symptoms are characteristic. Too much weight has been given to the murmur. In the absence of all murmur there may still be an aortic insufficiency. The murmur may be evanescent. It may disappear for a day or two, or even an hour or two and then return. Usually such a varying murmur is functional in origin, but it must be borne in mind that it can be organic. The murmur may be inaudible to the ear and be plainly heard by the stethoscope. It may be ab-

solutely inaudible by the stethoscope and yet be plainly heard by the ear. For this fact there is no explanation.

Regurgitant Murmur.—The murmur of aortic regurgitation may not always be heard best in the classical place. It may at times be best heard at the ensiform cartilage or at the base of the heart; disappear when the ear is carried down the sternum, and yet be plainly heard at the end of the sternum. Prof. Allbutt's picturesque expression of this fact is worth recalling, "Murmurs, like rivers, sometimes run under ground." The murmur of an aortic regurgitation may be heard only at the apex, and give rise to the thought that a mitral lesion exists. In a word the murmur as a symptom requires careful corroboration. A harsh systolic murmur at the second left intercostal cartilage may be due to aortic valvulitis, but may also be due to pressure on the pulmonary artery or to anemia. The size of the heart is very important in aortic regurgitation. The form of the thorax may give the impression of an enlarged heart when no enlargement exists. In a long thin thorax a large part of the heart is uncovered in front and so a normal organ may simulate the heaving impulse of a hypertrophied heart. It may also give the impression of an apex beat in the sixth interspace when it is really in the fifth. It must be borne in mind also that tumultuous heart action may mean no more than a neurosis of the heart. The condition of the kidneys should always be looked to very carefully, for an enlargement due to nephritis may closely simulate aortic disease. Pain is an especial symptom of both forms of aortic disease. In cases in which the symptoms of pain was particularly investigated sixty-eight per cent. of those suffering from aortic trouble complained of it. In 180 cases of mitral valvulitis only seven and two-thirds per cent. complained of pain.

Aortitis Angina.—Inflammation of aorta may exist either with or without aortic valvular trouble. It is usually a chronic productive inflammation leading to necrosis and degeneration with production of atheromatous plates in the aorta, or it blocks the orifices of the coronary arteries, or leads to aneurism. The rough surface of the aorta over the inflamed part may give rise to a distinct murmur. Arteriosclerosis of the coronary arteries is much more frequent in New York than it is usually thought to be. The symptoms it occasions are usually attributed to dyspepsia. When a frank attack of angina pectoris occurs it is hard to understand how many practitioners still cling to the idea that there may be nothing more serious the matter than some functional stomach trouble. In a recent case the patient said he felt as if a devil were under his breastbone. There was no murmur although the aortic sound was weak. The patient died in a typical attack of angina. In another case in which a man had been denied insurance because his pulse was constantly 90 and occasionally intermittent there had been some pains in the heart region and down the arm. Murmurs were absent

and there were very few signs of heart trouble. The patient died, however, from angina, having his first characteristic attack at the end of life. Usually in these cases there is enlargement, and the aortic sounds are feeble or absent. In addition to this, changes can be noted in the arteries in other parts of the body.

Dr. Thomas E. Satterthwaite's paper, entitled "Recent Methods of Treatment of Heart Diseases by Baths and Exercises," was then read (see p. 361).

The Myocardium in Compensation.—In the discussion Dr. Leonard Weber said that the important factor with regard to loss of compensation is the degeneration of the myocardium. If the myocardium is not diseased the heart muscle may be overstretched and yet recover. This has occurred in his own personal experience. If this were not true there would be many more deaths from acute rheumatism. It is true the overstretching can cause a fatal issue by its suddenness, heart failure setting in as a consequence of the continued weakness of the circulation. One of the difficulties in discussing the older literature is that the existence or non-existence of degeneration was determined on autopsy by macroscopical examination alone. At the present time microscopic examination discloses extensive degeneration when there is not the slightest sign of degeneration to the naked eye. Usually there are a number of foci in process of degeneration scattered here and there, especially at certain susceptible points in the heart muscle. Of late years there has been a good deal of talk in America of Nauheim and of the Nauheim methods of treatment. It seems of interest then to give a few "don'ts" from the experience of one who has been at Nauheim and who has seen the results of mistakes made by practitioners in sending patients to Nauheim. (1) Don't send neuroasthenic patients. When patients have begun to lose their personal grip of themselves and are morbidly introspective they should not be sent to Nauheim, but to the bracing air of the mountains. (2) Don't send patients immediately after acute rheumatism. Nauheim itself is damp and eminently unfavorable for this class of patients and the baths do them more harm than good. At Nauheim it is the custom to say that the baths bring the rheumatism out, but it is really the climate of the place. (3) Don't send patients with tabs, nor as a rule patients suffering from incurable nervous affections, even though they may have complicating heart affections. Such patients may be afforded temporary relief by the indifferent thermal baths of other watering-places. (4) Don't fail to provide your patient with an accurate written history containing the exact diagnosis of his ailment, of any complications that may exist and of a list of the prescriptions that he has been taking recently. During the season physicians at Nauheim are extremely busy. The season lasts but a few months in the summertime and the doctors must make their living for the year. They may not make exact diagnoses,

and thus may miss important complications that contraindicate certain features of the treatment. (5) Don't, if you are giving Nauheim treatment at home, advise baths every day, but at most every other day, and only as frequently as that for sthenic cases. Ever fourth day is sufficient for the ordinary weak hearts that are the most suitable subjects for this treatment.

Heart Murmurs.—Dr. William H. Thomson said that he had arranged this discussion on diseases of the heart mainly with the idea of bringing out the fact that murmurs are not the all important symptoms in cardiac affections. There are a number of symptoms that have great significance apart from murmurs. Dr. Musser showed how insidious may be the progress of myocarditis and how it must be missed very frequently even when a good deal of care is taken in the examination of the patient. These cases terminate very frequently in congestion of the lungs. A not unusual symptom is rather rapid short breathing with comparatively long inspiration. An alteration in the complexion is not infrequent although it is not invariably present. A weak heart impulse and a weak pulse are strongly confirmative of other symptoms that may be present. Mental and renal symptoms sometimes supervene and help to substantiate the diagnosis. Dr. Koplik showed the importance of the myocardium in children. Very often this becomes degenerated during one of the exanthemata in early life or from the violent coughing of whooping-cough and then, when one of the infectious fevers develops later, heart failure is apt to supervene. A study of heart diseases shows that the heart is very different from an organ that merely opens and shuts valves. The muscular walls of the heart itself are much more important than the valvular mechanism. Defects of the valvular mechanism may be made up for, but the degeneration of the heart muscles cannot. It is a great mistake of therapeutics to place much reliance on the heart tonics in the hope of deriving from them any permanent relief. Digitalis, strophanthus, and nitroglycerin only stimulate function for the time being, but if relied on for any length of time inevitably lead to disappointment. They are only adjuvants to the real heart remedies. These are open air exercise, good hygiene, plenteous unirritating food, everything, in a word, that puts the patient in a good condition. Some time we shall have open air sanatoria for heart diseases. Then we will have the true rational treatment for cardiac affections. All muscular power is in direct proportion to the respiration. This is a great biological principle. If we breathed through our skins as does the flea we should be able to leap as he does. The difference between our comparative muscular powers is due to the greater amount of oxygen the little creature absorbs. It is wonderful what an effect open air treatment has on the heart, just in the same way it affects all muscles. A camping tour for five or six weeks will do more for failure of muscular power in the bladder than almost anything else

that can be advised. Gynecologists could go out of business if the doctrine of fresh air for women were more persistently practised.

As to drugs, iron is important because it helps us to breathe. It is the iron compounds in the blood that act as carriers of oxygen. Next to iron the saline purgatives are the best drugs. These relieve the congested circulation and so do a great deal of good. The saline waters of Kissingen and Vichy are of exactly the same formula as the blood, minus the corpuscular elements. There is no stimulant that equals a full dose of these for hepatic torpor and chronic congestive conditions during cardiac affections. The intermittent use of calomel is an extremely important and helpful therapeutic measure. Sodium iodide often does a great deal of good for the relief of symptoms. Undoubtedly the judicious use of these drugs helps to prolong life.

NEW YORK COUNTY MEDICAL SOCIETY.

Stated Meeting, Held Monday, January 29, 1900.

The President, George B. Fowler, M.D., in the Chair.

Dr. Fowler announced that owing to the praiseworthy efforts of Dr. Henry Dwight Chapin, the Chairman of the Committee on Hygiene of the New York County Medical Society, the members of the Society would have the opportunity of listening to a thorough discussion of New York's milk supply, its character, its sources, its safeguards, its dangers, of the remedies that would be used to improve it and the methods that could be employed to gradually make it the best milk supply in the world.

New York's Milk Supply.—Dr. Chapin said that there was no subject more important for physicians and for the general public in the matter of food supply than the milk furnished to New York. In all 1,250,000 quarts are delivered in New York every day. This comes from five States, *viz.*, Connecticut, Massachusetts, New Jersey, Pennsylvania, and New York. In the city of New York there are 23,500 cows. Most of the milk that is supplied is at least twelve hours old and a great deal of it from twenty-four to thirty-six hours old. It is easy to understand how difficult it is to keep milk clean and how important it is that it should originally be obtained as free from foreign matter as possible. In many places where milk is shipped there are separating stations where by centrifugation foreign particles are removed. At one of these stations 1800 quarts are purified in about two hours. The examination of the sediment shows that it contains air, pus, blood, cocci, bacilli, and an amount of vegetable matter partly from hay and straw in the stables, and partly from the excretion of the animal. The solution of the problem of pure milk is cleanliness on the farm. If this lesson can be taught great good would

be accomplished. It can only be taught, however, by making the farmer appreciate that greater cleanliness means an increased price for his milk. At present in spite of stringent laws on the subject there is a large sale of various preservatives of milk. These are extensively advertised by most of the sellers of dairy articles. The most commonly used preservatives are boric acid, borax and formalin. None of them are harmless and formalin, especially, hardens the curd and makes it very difficult of digestion. It is interesting in this regard to note that a substance has recently been placed on the English market which is called lactohorn. It is meant to replace horn gutta-percha, ivory and celluloid for knife-handles, combs, and the like. It is made from the caseine of cow's milk hardened by means of formaldehyde. Physicians can improve the present condition with regard to the milk supply by united action. An advisory board of physicians who would study the conditions and advise both farmer and dealer would be of the greatest value. A physician advisor has been appointed to a number of private dairies and this feature has led to some very notable improvements and has been a source of a great deal of satisfaction even from a business point of view.

Department of Agriculture and Milk.—Major Henry E. Alvord discussed the dairy division of the Bureau of Animal Industry at Washington, of which he is chief, and its connection with the dairy industry in the United States. Up to the present time there has been no surplus of dairy products in the United States except of cheese, and therefore it has not been necessary to look for foreign markets. At the present time, however, there are indications that there will be a surplus of dairy products. It is of the greatest interest that our dairy products should be of the very best quality and an exhibit in this department is planned for the exposition at Paris. At present the statistics of the milk supply are very incomplete. The last census gives about one cow to every fourteen inhabitants of the United States. This seems a reasonable number, but a little consideration will show that it is inadequate to supply the amount of milk that should be used. The average cow is supposed to yield daily from six to eight quarts, but in reality gives less than four quarts, so that there is scarcely more than half a pint of milk a day to each inhabitant of the country. The conditions for the collection and distribution of milk in the cities of the United States have improved very much during the last twenty years. Not only is the milk itself better, being richer in fats and solids, but it is more free from organic material of all kind, especially micro-organisms. Alarmist reports of the possibility of the spread of disease by means of milk do much harm. Occasionally, but, it must be said, very rarely do they serve to prevent some few cases of disease. The average amount of cream on the milk generally supplied to cities is four per cent., although only three per cent. as a rule is required by law. It is very probable that

four per cent. milk would prove almost too rich and would require dilution for infants and for invalids. Preservatives, boric acid, formalin and the like, are rightly condemned. They put a veil over evil and set a premium on uncleanliness. Sterilization and Pasteurization, although it is the custom to laud them so much in our day, are scarcely better. At best they are only a cooking of the milk, cover a multitude of sins in its preparation, and put a premium on carelessness. While in particular cases for infants and invalids they may be of use, their employment should never become a general rule. Condensed milk is much less digestible than is plain whole milk. This entire subject needs the most careful consideration.

Value of Skim-milk.—There is in this country an immense supply of a most valuable food product which is not made use of to the extent to which it ought to be. Skim-milk is not permitted to enter the city of New York, although immense quantities of it are easily accessible. The method of dealing with the subject can only be characterized as the lazy man's way and a criminal way. The sale of skim-milk might easily be regulated, although this, of course, would require care and the proper enforcement of laws. Absolute prohibition seems more easy to the authorities, but it is not so effective in the end. As a matter of fact no animal food compares pound for pound with skim-milk in its value as a food product. Yet this very valuable substance is absolutely forbidden in New York City. It may not even be sold for what it is. While other towns throughout the country derive a very great advantage from it and use it at two to three cents a quart, New Yorkers are absolutely precluded from its use. A cheap, wholesome food, readily accessible, is thus entirely denied to the poor. At the same time condensed skim-milk may be purchased in the open market. There is no question in regard to the better and well-known brands in which the whole milk is used for condensing purposes, but of condensed milk at five, six, and eight cents a pound; fifteen to eighteen cents a pound must be the price if there is to be any guarantee that it is whole milk which has been condensed. This treatment of the skim-milk question constitutes an unfortunate blot on New York's management of her milk supply which should be removed as soon as possible. It will not be hard to do it and the reform will be of great advantage to the poor and will supply them with most nutritious material for food at the very lowest rates.

Bacteria in Milk.—Professor H. W. Conn of Wesleyan University, Middletown, Conn., reviewed the recent advances in the bacteriology of milk. He agrees with Major Alvord that alarmists on the subject of danger from infected milk are liable to do a great deal more harm than good. Just what are the noxious elements which may get into the milk it is well to know and to provide against. If the sediment from an ordinary separator be examined it will be found to contain sticks, insects, legs and wings, particles of hay and straw, blood, pus, all kinds of dust and quite

an amount of organic material. Most of this organic material is really composed of cow excrement. It has been calculated that three hundred pounds of bovine excrement find their way into New York City every day in the milk. The reason for this is very clear. The cows in most dairies are never cleaned. The excrement is allowed to cake on them until thoroughly dried, when it is easily rubbed off during the milking process. Much of this may be removed by the separator. But unfortunately the separator is entirely unable to remove the finer particles. As a matter of fact, more bacteria can be found after the passage of the milk through the separator than before. All that seems to be accomplished by centrifugation is that hosts of bacteria clinging together around particles of dust are broken up and diffused more widely through the milk. It is important to know just where the bacteria come from that get into the milk. Their first source is from the dirty hands of the milker. The second source is the air. Very often when cows are being fed, hay is shaken down before them and the animal while feeding shakes this up more or less. This gives rise to a cloud of dust-particles to most of which a number of bacteria cling. The third source is the vessel in which the milk is placed. These vessels are either never thoroughly washed or are washed with unclean water. Even after thorough cleansing they are allowed to remain exposed to dusty air. The fourth and most important source of bacteria is the cow herself. There are no bacteria in the milk when it is secreted from the gland, but there is always a number of bacteria in the milk-duct which accumulate between the milkings, which are washed out by the first milk that is pressed from the udder. It has been shown by demonstration that there is a constant rain of bacteria beneath the animal. Gelatine plates exposed for a short time beneath the animal show a large number of colonies.

Danger from Milk Bacteria.—Most of the bacteria in milk are practically innocuous. In fact, even in so-called pure milk from three to four thousand will be found in every cubic inch. In ordinary city milk three to six million bacteria per cubic inch is not an unusual number. It is only when the number reaches three to four hundred millions per cubic centimeter that the milk is considered to be very bad. The number of bacteria in any given sample of milk depends, first, on the cleanliness of the dairy from which it has come and, secondly, on the age of the milk and the temperature at which it has been kept since it came from the animal. London derives all of its milk supply from a radius of 80 miles and the average age of the milk when distributed is about seven hours. Berlin derives its milk supply from a radius of thirty miles only and practically none of it is more than six hours old when distributed. New York, as has been told this evening, derives its milk supply from a radius of over 300 miles and yet because ice is freely used during its transportation the bacteria are not so numerous in the average sample of the city's milk as in an aver-

age sample of that supplied to London or Berlin. Milk is eminently liable to be affected by micro-organisms, yet this fact is not entirely a disadvantage. It is to it that we owe the milk industry. If the grocer could store and sell milk as he does molasses there would be practically an end to the immense industry which has grown up to supply our large cities with milk. Were we to blot out the bacteria there would be other disadvantages in addition to those that would accrue to the present milk trade. The flavor of butter is mainly due to bacteria. In this country we are prejudiced in favor of rather highly flavored butter. In Europe a tasteless butter is preferred, but such dairy products would not be popular in this country. With regard to cheese nearly the same thing is true. Practically all the varieties of cheese are due to different varieties of microbes that grow in the curd and produce the flavors which are so gratifying to the taste. It must be borne in mind, then, that most of the microbes in milk are absolutely harmless. Many of them are very beneficial.

Disease Producers in Milk.—Three types of disease-producing materials are found in milk; first, that from disease of the cow herself; secondly, that due to contamination of the milk after it has come from the animal and, third, that due to toxins produced by bacteria which grow in the milk. Of the first type of disease-producers the most prominent is the tubercle bacillus. No doubt there exists in milch cows considerable tuberculosis. There is also no doubt that a tuberculous cow may give tuberculous milk. Where the tuberculous process exists in the udder of the cow there will almost always be tubercle bacilli in the milk. It is extremely uncertain whether tubercle bacilli ever get into the milk when the tuberculous processes are situated in other parts of the animal than in the lacteal apparatus. Granting the presence of tubercle bacilli in milk it is still uncertain whether the tubercle bacilli which produce tuberculosis in cattle will also produce the disease in human beings. How much risk there may be is not certain. Some slight amount of danger exists, but there is danger in everything in this world and the risk of being infected with tuberculosis by tuberculous milk is certainly much less than was formerly thought.

Tuberculosis in a large majority of cases first attacks the lungs. It obtains entrance by the breath, not by the food. Intestinal tuberculosis as a primary infection is rare. It is at least possible that the bacillus which produces tuberculosis in the cow is not pathogenic for man and that the bacillus of human tuberculosis may not affect the cow.

Human Tuberculosis Decreasing.—While human tuberculosis is on the decrease, bovine tuberculosis is on the increase. Human tuberculosis is decreasing as rapidly in England and the United States as it is in Germany, although in the English-speaking countries milk is used raw, while on the Continent it is always boiled before being taken. There is probably greater danger

in an evening at the theatre or at the opera than there is in the ordinary consumption of unboiled milk. It is probably that at such gatherings infection most frequently occurs.

Scarlet fever and diphtheria are perhaps communicated through milk. Certain reported epidemics in England seem to prove this, although as yet here in America we have had no observations confirming this fact. The most important secondary contamination to which milk is liable is that with the typhoid bacillus. There are reports now in medical literature of more than fifty epidemics of typhoid fever traceably to the milk supply. The great reason why typhoid fever is so much more apt to be communicated by milk than is tuberculosis is that the typhoid bacillus grows in milk, while the tubercle bacillus does not. In these epidemics the typhoid fever can be traced all along a milkman's route. It is an interesting and important observation that as yet there has been no instance in large cities of a typhoid fever epidemic being traced to the milk supply. The sporadic cases which occur in large cities may be due to the milk supply, but the milk is usually so mixed from different sources that it is impossible to decide just where the infection may have come from. In addition to typhoid fever there are a series of intestinal diseases especially marked by diarrhea which occurs as the result of the bacteria in milk. These do not seem to be due to any particular germ, nor to any single pathological entity, but are the result of the slow poisoning consequent on the constant presence of bacterial toxins in the milk for considerable periods. That this is the true explanation of the etiology of these diseases may be seen from the fact that the virulence of the epidemic rises and falls with the temperature and the whole number of bacteria present in the milk, while no definite pathologic germ can be found.

Remedy for Present Condition.—The ideal remedy for the present abuses and dangers in the milk supply would be absolute cleanliness in the dairy and on the farm. This does not, however, seem to be possible in the present stage of civilization. In the words of an old friend "it is a condition and not a theory" that is present. The actual condition must be met as far as possible. There is no doubt that Pasteurization of milk covers up a multitude of evils. But it undoubtedly constitutes the best method at present for treating the contaminated milk. At Copenhagen there is a large establishment in which milk is Pasteurized and sold at the same price as ordinary milk. The reason very candidly given for this being done is that less care is needed in the collection of milk which is to be Pasteurized. Under these circumstances, of course, Pasteurization is rather an evil than a good. Where children must be fed with milk long hours after its collection there is no doubt that Pasteurization will prevent many of the dangers to which they would otherwise be exposed. For invalids and weaklings generally the doctor will, of course, prefer the milk Pasteurized; it will still contain noxious sub-

stances, for not all of the toxins of the bacteria that are present in the milk are destroyed, but at least all the living germs have been killed and infections will not take place.

Cheap Milk is Poor Milk.—There is the cardinal principle that must be remembered when buying milk for family use. If a proper price is not paid for milk the purchaser cannot expect to get a good product. Milk constitutes one of the most valuable food products that we have. It should be used much more than it is, but if it is to be used with benefit and without danger the consumer must be satisfied to pay a fair price for it.

Dr. Herman Betz, in charge of the inspection of milk, Department of Health, New York City, read a paper entitled "The Work of the New York Board of Health in the Inspection of Milk."

Milk-Dealer's Standpoint.—Mr. Cuddeback read a paper on this subject, in which he said: There are two classes of purchasers of milk, those who want cheap milk, and those who want good milk irrespective of the cost. The standard as to what constitutes good milk is very vague in most people's mind. There was a time not very remote when people thought that good milk should give ten per cent. of cream. This led ingenious unscrupulous dealers to remove a certain amount of the skim-milk underneath the cream and thus spoil the correct proportion of the natural milk. Of late years the centrifuge has been found a very useful machine in removing dirt of various kinds from the milk. It has been found by the dealer, however, that the use of the centrifugal separator so disturbs the cream in the milk that it does not rise to the top as plentifully as it did before. This spoils the milk in some people's eyes and often hurts the sale. Thus a process which benefits the milk the dealers find to be a positive disadvantage. It is evident then that an education of the people is needed which will enable them to appreciate good milk. The law of supply and demand will inevitably be exerted. The dealer will not supply a less salable product and is perfectly ready to make any changes which will benefit his trade. If the people demand thick cream at the top of the milk with plenty of dirt at the bottom of the bottle, that is what they have to provide. If there were a good demand for good milk there would need to be no increase of price to supply it.

Mr. L. B. Halsey said that this is the first time that doctors and milk dealers have gotten together to exchange ideas on this important topic of the milk supply of a great city. Not all milk dealers are in the business merely for all the money that can possibly be made out of it. Many of them are ready to make some sacrifices to raise the standard of the product which they are handling. There is no doubt that proper rewards will come to those who make some present sacrifices for the purpose of securing a better product for distribution. Milk cans must be made sterile as far as elbow grease, hot water and soap and soda with plenty of sunlight can make them. To have the farmer cleanly, however, we must assure him a

fair price for his milk. We cannot go and demand extra precautions and offer him no more than he can get by his present careless methods. To get good milk and distribute it at less than eight cents a quart is impossible. To buy milk at a less price than this is to encourage the furnishing of a bad product. The people must be educated to know what good milk means. Even physicians may need some instructions in the matter. It is almost amusing to consider how the milk supply of wealthy families is obtained at the present moment. The buying of milk is left to the chef. He, of course, does not buy what he knows to be the best milk, but obtains his supply from the man who will pay him a commission of ten, fifteen, or twenty per cent. Practically, then, the milk-dealer may supply him with whatever sort of milk he cares to and no complaint will be heard. The milk-dealer, then, cannot look to the multimillionaire families for any encouragement in providing good milk. If the woman of the house is entirely engaged with society occupations and women's clubs and her charities, she cannot see to the milk supply and that duty devolves on the cook. If you want to sell milk to the cook you must "do the right thing by her" and then you can sell her what milk you please. Price, not quality, is the desideratum. It is evident, then, that a good deal of education is needed among all classes of society in order that good milk may be appreciated. For this education of the classes the milk-dealer must look to the physician. Working together good milk supply can be secured if the public is satisfied to pay a fair price for a good product.

In discussion Dr. Betz said, with regard to certain assertions made by Major Alvord that a word must be said in extenuation of the regulations with regard to skimmed milk in New York. No skimmed condensed milk is allowed to be sold. Brand after brand has been driven from the market. It may be said that at the present time there is practically no sale of it in the city. The use of preservatives has also been entirely driven out. For years now although frequent samples have been tested in the laboratory for the presence of preservatives none have been found. Some years ago formaldehyde was found in certain samples of milk, but it is no longer used.

Human Tuberculosis Contagious for Cattle.—The question has been raised whether the tubercle bacilli from human subjects are ever pathogenic for animals and the converse as to whether animal tubercle bacilli are pathogenic for man. A very striking illustration of the first occurred not long ago in the service of the New York City Board of Health. There is a sanatorium for tuberculous patients within the city limits situated on Long Island Sound. Belonging to the sanatorium there was a herd of five cows. Tuberculosis was suspected to exist among the animals and a test showed that four out of the five were tuberculous. The fifth animal gave absolutely no reaction to the tuberculin test. Three months later, however, the tu-

berculin test proved positive. The animals were all killed and proved to be extensively tuberculous. It was then noted that the animals were accustomed to feed on a lawn where the tuberculous patients frequently used to sit. Undoubtedly the sputum from these patients on the grass was the source of the disease in the cattle. It seems worth while to report a slight epidemic of typhoid fever that occurred from milk in New York, since it has been said that it is hard to trace such epidemics, as a rule, in large cities, and none have been reported. A series of cases of typhoid fever occurred in a fashionable boarding-school on the west side of the city. After careful investigation nothing suspicious could be found in the house itself, in the inmates or the water supply. It was, however, deemed advisable to trace the milk supply. This came from a dairy out on the Sussex road in New Jersey. Investigation showed that here was the source of the epidemic. A farmer's son had been treated for typhoid malaria. The stools had been thrown into a privy situated on a stream above the dairy. While this water was not used for washing the cans it was used for cooling them and in this way the typhoid bacilli got into the milk. As a result of the same source of infection a number of towns in New Jersey had epidemics of typhoid plainly traceable to the milk supply.

Failure of Health Board.—Dr. Piffard said that instead of improving the milk supply the improper and unwise regulations of the Health Board have proved a source of harm. There has been no improvement in the regulations for fifteen years. The milk supply has undoubtedly become better, but for this the health authorities must not be thanked, but the truly commercial spirit of the milk-dealers who realize that a good product is more profitable in the end. Three per cent. of cream is entirely too low a standard for milk. It should be four per cent. at least. Other milks of even higher cream standards should be sold with the guarantee of their richness. The test of three per cent. of cream and twelve per cent. of solids in milk is entirely a false standard. The farmers in Delaware county found that when they shipped four hundred gallons of milk with four per cent. of cream on it they got no more for it than if it had but three per cent. of cream. They therefore skimmed forty gallons of the milk, removing the cream and putting the skimmed milk back, thus making the milk of the proper standard as regards cream and solids. It would have taken a chemical analysis to have demonstrated the sophistication. The regulations of the New York Board of Health have demoralized the industry. The present cream standard for milk should be at least $3\frac{1}{2}$ per cent. and after five years it should be made 4 per cent. The fact that the standard is to be raised should be publicly announced so as to encourage the farmer in the selection of the best milch cows. It has been stated that New York obtains its milk supply from a radius of 500 miles. There is no need that milk should be shipped so far. There

are grazing lands in abundance near New York that are available and their use should be encouraged. The shipping of milk for long distance in cans is open to decided objections. The length of time necessary for it to reach its destination adds to the objections to such long shipments. Milk shipped in cans should not be accepted for distribution in New York City if it comes from farther north than Albany or farther west than Binghamton. Where milk is placed in glass and stored in refrigerator cars it does not make any difference how far it may be shipped. Legal regulations would add greatly to the safety of our milk supply.

REVIEWS.

Transactions of the American Orthopedic Association, Thirteenth Session. Held in New York, N. Y., May 31 and June 1 and 2, 1899. Volume XII. Philadelphia: Published by the Association, 1899.

THE transactions of this Society appear in a very neat volume of 368 pages, printed upon extremely good paper, and illustrated with about 130 reproductions of photographs or diagrams. There are some fifty-one articles on orthopedic subjects, of which ten are on new instruments. On the whole, this collection of papers shows good work on the part of the members, and the advance not only in orthopedic surgery, but also in the use of mechanical appliances and gymnastics in this specialty.

A Text-Book of Physiological Chemistry. By OLOF HAMMARSTEN, Professor of Medical and Physiological Chemistry in the University of Upsala. Authorized Translation from the Author's Enlarged and Revised third German Edition. By JOHN A. MANDEL, Professor of Inorganic Chemistry and Physics, and Adjunct Professor of Physiological Chemistry in the University and Bellevue Hospital Medical College. Second edition. First thousand. New York: John Wiley & Sons. London, Chapman & Hall, Limited.

In no department of economics, perhaps, is the law of supply and demand better illustrated than in the province of medical literature. As research advances there is constantly attending it a concomitant widening of the technical horizon and avenues for investigation are perpetually presenting themselves in new directions. But the path of scientific progress is always broadly marked—by a trail of printer's ink, and as each new subdivision of medical knowledge or of allied branches becomes the center of interest there speedily springs up a mushroom crop of special text-books and treatises designed to elucidate it. It is therefore incontrovertible evidence of sterling merit when an older book for years holds its own against the newer comers and maintains its position as a standard in spite of the lucubrations designed to supplant it. Such a one is the volume before us which for over a decade has been the

recognized authority in its field and now in its second American edition revised and enlarged from the author's third German issue seems destined to another period of undisputed rule.

With so well known a work, discussion of the subject matter is superfluous, but for those to whom it is new it may be said that it well deserves its reputation of being the most complete and practically useful exposition of the subject in the language.

Proceedings of the Pathological Society of Philadelphia. January, 1900. New Series, Vol. III., No. 3.

F. R. PACKARD notes that the earliest autopsies recorded in this country were performed about 1674. Jopson and Ghriskey report a case of anthrax with typical vesicular primary lesion but no systematic symptoms until the ninth day, when the temperature suddenly rose and the patient died in an attack of dyspnea. Arthur Meigs states that the small cavities so often seen in microscopical sections of the liver do not, of necessity, indicate fatty degeneration, but may be of a cystic nature. Wadsworth and Spiller report a case of tumor of the occipital lobe, causing atrophy of both optic nerves, a retinitis similar to that associated with albuminuria, spasticity of the legs, and epileptic convulsions. De Schweinitz and Steele report the recurrence of a melanotic sarcoma of the orbit five months after enucleation of the eye, and Eshner describes the symptoms in a case of carcinoma of the esophagus situated three inches from the stomach. J. P. Arnold gives an interesting description of a case of sarcoma in the mediastinum. Summing up he states that the subjective symptoms of such a condition are dry cough, dyspnea, moderate pain, palpitation and general weakness. The objective signs are cyanosis, enlargement of superficial mammary and epigastric veins, edema of face, neck, arm or leg, changes in form and size of thorax, displacement of heart, diaphragm, and liver, abnormal areas of immovable dulness with absence of voice, breathing and vocal fremitus, and a peculiar wheezing inspiration with a sinking of the upper part of the sternum during expiration. In addition are the various signs of pressure upon the mediastinal contents, viz.: aphonia, dysphagia, irregular pupil, unilateral sweating, cardiac irregularities, inequality of the radial pulses, etc. Riesman presented specimens taken from a lioness that had died of suffocation.

A Text-book of Materia Medica, Therapeutics, and Pharmacology. By GEORGE FRANK BUTLER, Ph.G., M.D., Professor of Materia Medica and Clinical Medicine in the College of Physicians and Surgeons, Medical Department of the University of Illinois. Third edition. Philadelphia: W. B. Saunders, 1899.

THIS is the third edition of Dr. Butler's book to appear since the original edition in 1896. We find a number of changes from the original copy, which bears out the author's statement in his preface that the book is thoroughly

revised. Some of the changes are in accord with the criticisms of Dr. Butler's work made in the *News* when the first edition appeared. The author, however, still refuses to recognize the employment of pilocarpin in eclampsia; he prints the same faulty pictures of dogs poisoned by strychnine; he gives no mention of the untoward effects of cocaine when used as an anesthetic; he has amplified, however, several parts of the work which needed it, and has thereby improved it. He tells us now what it is that chloroform can do to the kidneys, but he still persists in attributing great respiratory irritation, even death, to ethyl bromide, without making any modification. When the first edition appeared we feared the book would be dangerous for a student. We confess somewhat to a change of heart; for three editions of such a book cannot appear unless there is something good in it for the student and practitioner. If Dr. Butler will continue to improve each successive edition of his book, as much as he has done this one, we do not doubt that he will eventually succeed in producing one that is above criticism. The publisher has done his full share in making the work attractive.

A Manual of Surgical Treatment. By W. WATSON CHEYNE, M.B., F.R.C.S., F.R.S., Professor of Surgery in Kings College, London; Surgeon to Kings College Hospital, etc.; and F. A. BURGHARD, M.D., M.S., F.R.C.S., Teacher of Practical Surgery in Kings College, London; Surgeon to Kings College Hospital, etc. In six volumes. Vol. II. Illustrated. Philadelphia and New York: Lea Brothers & Co., 1900.

THE second volume of this work carries out the promise of the first, a practical surgical help to the student, the practitioner and the specialist. As the authors state, only the salient points in pathology and symptomatology are given, treatment, however, being described in detail for each surgical subject considered. As we noted in reviewing the first volume, this is the kind of work which is needed. The ordinary text-book is a compendium of pathology and symptoms; this work is a good supplement to any complete work on surgery.

The present volume treats of deformities, and of the surgical affections of the tissues, the skin, the nails, the lymphatic system, the fasciae bursae and muscles, the tendons, the vascular systems and special aneurisms.

As an example of the manner in which a subject is handled, we cite, at random, that of "hammer-toe." A page and a half are devoted to its definition and pathology, followed by three pages of treatment. The treatment advocated for this condition consists of appliances, with illustrative cuts, tenotomy or excision of the head of the first phalanx. These operative measures are succinctly described. The after-treatment is then given in detail.

The entire subject of scoliosis is omitted in this

volume, but, it is promised, will subsequently be taken up in the volume on diseases of the spine. We note, too, that Trendelenburg's operation for varicose veins is not mentioned. It is a measure which is in high favor with some surgeons. In justification, however, it must be said that the authors describe, as a rule, only such operative measures as have met with success in their own hands.

As a practical, handsomely illustrated work on surgery, which teaches surgical methods as they are applied in practice, including the preparation and after-treatment of patients, these volumes are undoubtedly destined to meet with unusual success.

BOOKS RECEIVED.

The MEDICAL NEWS acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the *MEDICAL NEWS* will shortly appear.

THE PRINCIPLES OF TREATMENT AND THEIR APPLICATIONS IN PRACTICAL MEDICINE. By Dr. J. Mitchell Bruce. Adapted to the U. S. Pharmacopoeia by Dr. E. Quin Thornton. 8vo., 614 pages. Lea Brothers & Co., Philadelphia and New York. \$3.75.

A MANUAL OF SURGERY. By Dr. Charles Stonham. In three volumes. Vol. I., General Surgery, 343 pages. Vol. II., Injuries, 383 pages. Vol. III., 725 pages. 8vo. Illustrated. The Macmillan Company, New York and London.

IMPERATIVE SURGERY. For the General Practitioner, the Specialist and the Recent Graduate. By Dr. Howard Lilleenthal. 8vo., 412 pages. Illustrated. The Macmillan Company, New York and London. \$4.00.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. Edited by Dr. George M. Gould. In 2 volumes. Surgery, 560 pages. Medicine, 656 pages. 8vo. W. B. Saunders, Philadelphia. \$3.00 per volume.

THE RETROSPECT OF MEDICINE. Edited by Dr. James Braithwaite. Vol. 120, 442 pages. Simpkin, Marshall, Hamilton, Kent & Co., London.

THE INTERNATIONAL MEDICAL ANNUAL. Synoptical Index to Remedies and Diseases. For the Twelve Years, 1887 to 1899. 8vo., 411 pages. E. B. Treat & Co., New York. \$2.75.

THE INTERNATIONAL TEXT-BOOK OF SURGERY. By American and British Authors. Edited by Dr. J. Collins Warren and Dr. A. Pearce Gould. Vol. I., General and Operative Surgery. 8vo., 947 pages. Illustrated. W. B. Saunders, Philadelphia.

TRANSACTIONS OF THE AMERICAN OPHTHALMOLOGICAL SOCIETY. Thirty-fifth Annual Meeting. Hartford.

DIE OHRENHEILKUNDE IM KREISE DER MEDICINISCHEN WISSENSCHAFTEN. Dr. E. Bloch. 16 pages. Gustav Fischer, Jena.

DIE TECHNIK DER SPEZIELLEN THERAPIE. Ein Handbuch für die Praxis. von Dr. F. Gumprecht. Second edition. 8vo., 354 pages. Illustrated. Gustav Fischer, Jena. Seven marks.

THE SURGICAL DISEASES OF THE GENITO-URINARY TRACT. Venereal and Sexual Diseases. A Text-Book for Students and Practitioners. By Dr. G. Frank Lydon. 8vo., 1024 pages. Illustrated. F. A. Davis Co., Philadelphia, New York and Chicago. \$5.00.

GYNECOLOGY. A Manual for Students and Practitioners. By Dr. Montgomery A. Crockett. Pocket Text-Book Series. 12mo., 368 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York. \$1.50.